



Guide for the Selection of Chemical, Biological, Radiological, and Nuclear Decontamination Equipment for Emergency First Responders

Preparedness Directorate Office of Grants and Training

Guide 103–06

March 2007

2nd Edition



Homeland
Security

DRAFT



Guide for the Selection of Biological, Chemical, Radiological, and Nuclear Decontamination Equipment for Emergency First Responders

Guide 103–06

Supersedes NIJ Guide 103–00, Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders, Volume I and Volume II, dated October 2001

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March 2007

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This guide was prepared for the Preparedness Directorate's Office of Grants and Training (G&T) Systems Support Division (SSD) by the Office of Law Enforcement Standards at the National Institute of Standards and Technology (NIST) under Interagency Agreement 94-IJ-R-004, Project No. 99-060-CBW. It was also prepared under CBIAC contract No. SP0700-00-D-3180 and Interagency Agreement M92361 between NIST and the Department of Defense Technical Information Center (DTIC).

The authors wish to thank Ms. Kathleen Higgins of the National Institute of Standards and Technology (NIST) for programmatic support and for numerous valuable discussions concerning the contents of this document.

We also wish to acknowledge the InterAgency Board (IAB) for Equipment Standardization and Interoperability and the Responder Knowledge Base (RKB). The IAB (made up of government and first responder representatives) was established to ensure equipment standardization and interoperability and to oversee the research and development of advanced technologies to assist first responders at the state and local levels in establishing and maintaining a robust crisis and consequence management capability. The RKB, supported under Award Number MIPT106-113-2000-002, Project Responder, from the National Memorial Institute for the Prevention of Terrorism (MIPT) and the Office of Grants and Training, Preparedness Directorate, U.S. Department of Homeland Security, has been built specifically to serve the needs of emergency responders. The RKB contains information on currently available products, along with related information such as standards, training, and grants.

We also sincerely thank all vendors who provided us with information about their products.

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FOREWORD:

The U.S. Department of Homeland Security, Office of the Secretary, Preparedness Directorate Office of Grants and Training (G&T) Systems Support Division (SSD) develops and implements preparedness and prevention programs to enhance the capability of Federal, State and local governments, and the private sector to prevent, deter and respond to terrorist incidents involving chemical, biological, radiological, nuclear, and explosive (CBRNE) devices. The Preparedness Directorate Office of G&T administers comprehensive programs of direct and grant support for training, exercises, equipment acquisition, technology transfer, and technical assistance to enhance the nation's preparedness for CBRNE acts of terrorism. The Preparedness Directorate Office of G&T SSD works closely with other ODP divisions and Homeland Security professionals gaining an intimate understanding of the emergency responder technology needs and shortfalls. In addition, SSD conducts commercial technology assessments and demonstrations, and transfers equipment directly to the emergency responders. As part of the Congressional FY-03 funding, SSD was tasked with developing CBRNE technology guides and standards for the emergency responder community. This is one of several guides that will aid emergency responders in the selection of CBRNE technology.

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COMMONLY USED SYMBOLS AND ABBREVIATIONS

A	ampere	hf	high frequency	oz	ounce
ac	alternating current	Hz	hertz	o.d.	outside diameter
AM	amplitude modulation	i.d.	inside diameter	Ω	ohm
cd	candela	in	inch	p.	page
cm	centimeter	IR	infrared	Pa	pascal
CP	chemically pure	J	joule	pe	probable error
c/s	cycle per second	L	lambert	pp.	pages
d	day	L	liter	ppb	parts per billion
dB	decibel	lb	pound	ppm	parts per million
dc	direct current	lbf	pound-force	qt	quart
$^{\circ}$ C	degree Celsius	lbf \cdot in	pound-force inch	rad	radian
$^{\circ}$ F	degree Fahrenheit	lm	lumen	rf	radio frequency
dia	diameter	ln	logarithm (base e)	rh	relative humidity
emf	electromotive force	log	logarithm (base 10)	s	second
eq	equation	M	molar	SD	standard deviation
F	farad	m	meter	sec.	Section
fc	footcandle	μ	micron	SWR	standing wave ratio
fig.	Figure	min	minute	uhf	ultrahigh frequency
FM	frequency modulation	mm	millimeter	UV	ultraviolet
ft	foot	mph	miles per hour	V	volt
ft/s	foot per second	m/s	meter per second	vhf	very high frequency
g	acceleration	mo	month	W	watt
gal	gallon	N	newton	λ	wavelength
g	gram	N \cdot m	newton meter	wk	week
gr	grain	nm	nanometer	wt	weight
H	henry	No.	number	yr	year
h	hour				

area=unit² (e.g., ft², in², etc.); volume=unit³ (e.g., ft³, m³, etc.)

PREFIXES (See ASTM E380)

d	deci (10 ⁻¹)	da	deka (10)
c	centi (10 ⁻²)	h	hecto (10 ²)
m	milli (10 ⁻³)	k	kilo (10 ³)
μ	micro (10 ⁻⁶)	M	mega (10 ⁶)
n	nano (10 ⁻⁹)	G	giga (10 ⁹)
p	pico (10 ⁻¹²)	T	tera (10 ¹²)

Temperature: $T_{^{\circ}\text{C}} = (T_{^{\circ}\text{F}} - 32) \times 5/9$

COMMON CONVERSIONS

0.30480 m = 1 ft	4.448222 N = 1 lbf
2.54 cm = 1 in	1.355818 J = 1 ft \cdot lbf
0.4535924 kg = 1 lb	0.1129848 N m = 1 lbf \cdot in
0.06479891g = 1 gr	14.59390 N/m = 1 lbf/ft
0.9463529 L = 1 qt	6894.757 Pa = 1 lbf/in ²
3600000 J = 1 kW \cdot hr	1.609344 km/h = 1 mph
psi = mm of Hg x (1.9339 x 10 ⁻²)	
mm of Hg = psi x 51.71	

Temperature: $T_{^{\circ}\text{F}} = (T_{^{\circ}\text{C}} \times 9/5) + 32$

ACRONYMS SPECIFIC TO THIS DOCUMENT

α	Alpha	LD x/y	Lethal Dose (x % lethality, y days post exposure)
β	Beta	HD	Sulfur mustard (blister agent)
γ	Gamma	HL	Mixture of HD and L
APPJ	Atmospheric pressure plasma jet	HN-1,2,3	Nitrogen mustards (blister agent)
BA	Biological agent	HPV	Hydrogen peroxide vapor
BX24	Decontaminant	HTO	Triated water or hydrogen-3
C ₂₆ H ₅₂ O ₂	ceric acid	IAB	Interagency Board
C ₂ H ₄ O ₃	Peroxyacetic acid	IDLH	Immediately Dangerous to Life and Health
C8 emulsion	German decontaminating agent	KOH	Potassium hydroxide
CA	Chemical Agent	L	Lewisite (arsenical)

CAF	Compressed air foam	LCt ₅₀	Lethal concentration of a chemical vapor or aerosol for 50 % of the population x exposure time
Ca(OCl) ₂	Calcium hypochlorite	mcg/kg	Microgram per kilogram
Ca(OH) ₂	Calcium hydroxide	MIPT	Memorial Institute for the Prevention of Terrorism
CaO	Calcium oxide	MOU	Memorandum of Understanding
CBIAC	Chemical and Biological Information Analysis Center (IAC)	MPDS	Multipurpose decontamination system
CBRN	Chemical, Biological, Radiological and Nuclear	MSDS	Material Safety Data Sheet
CBRNE	Chemical, Biological, Radiological and Nuclear, and Explosive	MSRP	Manufacturer's suggested retail price
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NaOCl	Sodium hypochlorite
Ci	Curie	NaOH	Sodium hydroxide
Cl	Chlorine	NBC	Nuclear, Biological, Chemical
CWC	Chemical Weapons Convention	NDA	New Drug Application
DHS	Department of Homeland Security	NIGA	Neutron-induced gamma activity
DNA	Deoxyribonucleic acid	NIJ	National Institute of Justice
DOT	Department of Transportation	NIOSH	National Institute for Occupational Safety and Health
DS-2 (DS2)	Decontaminating solution-2	NIST	National Institute of Standards and Technology, Office of Law Enforcement Standards
DTIC	Department of Defense Technical Information Center	NPL	National Priorities List (Superfund sites from CERCLA)
ECBC	Edgewood Chemical Biological Center	NRC	Nuclear Regulatory Commission
EDS	Electrostatic decontamination system	PPE	Personal protective equipment
EDTA	Ethylenediaminetetraacetic acid	psi	lb per square inch
EPA	Environmental Protection Agency	RA	Radiological Agent
eV	Electron volts	RBDS	Room Bio-Decontamination Service
FDA	Food and Drug Administration	RDD	Radiation Dispersal Device
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act	rem	Roentgen Equivalent Man/Mammal
G&T	Grants and Training	RKB	Responder Knowledge Database
GA	Tabun (nerve agent)	RNA	Ribonucleic acid
GB	Sarin (nerve agent)	RSDL	Reactive Skin Decontamination Lotion
GD	Soman (nerve agent)	SEB	Staphylococcal enterotoxin
GF	Cyclosarin (nerve agent)	SF	Selection Factor
GI	Gastrointestinal	SSD	Systems Support Division
H	Mustard (blister agent)	STB	Super Tropical Bleach
HAD	hot air decontamination	Sv	Sievert
H ₂ O	Water	TICs	Toxic Industrial Chemicals
H ₂ O ₂	Hydrogen peroxide		
(H ₂ Ce(SO ₃ NH ₂) ₆)	Hexasulfamato ceric acid	TIMs	Toxic Industrial Materials
(H ₄ Ce(SO ₄) ₄)	Tetrasulfato-ceric acid	TTP	thrombotic thrombocytopenic purpura
HCl	Hydrogen chloride	VIG	Vaccinia immune globulin
HUS	hemolytic uremic syndrome	VX	O-ethyl-S-[2(diisopropylamino)ethyl] methylphosphonothioate (nerve agent)
IND	Investigational New Drug	USAEC	U.S. Army Environmental Center

ABOUT THIS GUIDE

The Preparedness Directorate's Office of Grants and Training (G&T) Systems Support Division (SSD) of the U.S. Department of Homeland Security (DHS) is the focal point for providing support to State and local law enforcement agencies in the development of counterterrorism technology and standards, including technology needs for CBRNE defense. In recognizing the needs of State and local emergency first responders, the Office of Law Enforcement Standards (OLES) at the National Institute of Standards and Technology (NIST), supported by the U.S. Department of Homeland Security (DHS), the Technical Support Working Group (TSWG), the U.S. Army Edgewood Chemical and Biological Center (ECBC), the National Fire Protection Association (NFPA), the National Institute of Occupational Safety and Health (NIOSH), and the Interagency Board for Equipment Standardization and Interoperability (IAB), has developed CBRNE defense equipment guides. The guides focus on CBRNE equipment in areas of detection, personal protection, decontamination, and communication. This document is an update of the *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders* (NIJ Guide 103-00) published in October 2001 and was developed to assist the emergency first responder community in the evaluation and purchase of CBRN decontamination equipment.

The long-range plans continue to include the following goals: (1) subject existing decontamination equipment to laboratory testing and evaluation against a specified protocol, and (2) conduct research leading to the development of a series of documents, including national standards, user guides, and technical reports. It is anticipated that the testing, evaluation, and research processes will take several years to complete; therefore, DHS will continue to maintain this guide for the emergency first responder community in order to facilitate their evaluation and purchase of decontamination equipment.

In conjunction with this program, additional published guides and other documents, including CBRNE detection equipment, personal protective equipment (PPE), and communications equipment used in conjunction with protective clothing and respiratory equipment, will be periodically updated.

The information contained in this guide has been obtained through literature searches and market surveys. The vendors were contacted multiple times during the preparation of this guide to ensure data accuracy. In addition, the information is supplemented with test data obtained from other sources (e.g., Department of Defense) if available. It should also be noted that the purpose of this guide is not to provide recommendations but rather to serve as a means to provide information to the reader to compare and contrast commercially available decontamination equipment.

Technical comments, suggestions, and product updates are encouraged from interested parties. They may be addressed to the Office of Law Enforcement Standards, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8102, Gaithersburg, MD 20899-8102. It is anticipated that this guide will be updated periodically.

Questions relating to the specific devices included in this document should be addressed directly to the proponent agencies or the equipment manufacturers. Contact information for each equipment item can be found in the equipment data sheets.

GUIDE FOR THE SELECTION OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) DECONTAMINATION EQUIPMENT FOR EMERGENCY FIRST RESPONDERS

This second edition guide includes information intended to be useful to the emergency first responder community in the selection of decontamination techniques and equipment for CBRN incidences. It includes an updated market survey of decontamination equipment technologies and commercially available decontamination equipment known to the authors as of November 2006. Brief technical discussions are presented that consider the principles of operation of the various technologies. Readers desiring additional technical information can obtain it from the extensive list of references that is included in appendix A and the equipment data sheets provided in the corresponding data sheets in the appendices.

1. INTRODUCTION

The primary purpose of the *Guide for the Selection of Chemical, Biological, Radiological, and Nuclear (CBRN) Decontamination Equipment for Emergency First Responders* is to provide emergency first responders with information to aid them in the selection of CBRN decontamination equipment. Decontamination equipment addressed in this guide includes delivery systems, containment devices and accessories, shelters, showers, commercial decontaminants (foams, solutions, gaseous, nonaqueous, etc.), and decontamination systems and trailers. The guide is intended to be more practical than technical and provides information on a variety of factors that should be considered when purchasing decontamination equipment, including functional application, capacity/throughput, and effectiveness, to name a few. This guide describes equipment suitable for decontamination of personnel, equipment, infrastructure, and facilities, and offers effectiveness in qualitative terms. It does not address detection methods or protocols for quantitatively determining decontamination effectiveness or standards for release of equipment or facilities for unrestricted use following exposure to a chemical agent (CA), biological agent (BA), radiological/nuclear agents, or toxic industrial chemicals/material (TIC/TIM) after decontamination; nor does it address who is authorized or will take responsibility for making that determination. For the remainder of this guide, when CA and TIC/TIM decontamination are referred to collectively, they will be referred to as “chemical decontamination.”

The remainder of this guide is divided into several sections. Section 2 provides an introduction to CBRN agents. Specifically, it discusses CBRN agents by providing overviews, physical and chemical properties, routes of entry, and symptoms. It also discusses the 98 TICs/TIMs that are considered in this guide. Section 3 presents an overview of CBRN decontamination. Section 4 presents an overview of CBRN decontaminants. Section 5 discusses 17 characteristics and performance parameters that are used in evaluating the decontamination equipment in this guide, and are referred to as selection factors in the remainder of this guide. The selection factors were compiled by a panel of experienced scientists and engineers with multiple years of experience with CBRN decontamination equipment and techniques, domestic preparedness, and identification of emergency first responder needs. The factors have also been shared with the emergency responder community in order to obtain their thoughts and comments. Section 6 is the final section in the guide and discusses the market survey that was conducted to identify the

commercially available CBRN decontamination equipment. It also presents several tables that allow the reader to compare and contrast the different decontamination equipment items utilizing the 17 selection factors.

Six appendices are included within this guide. Appendix A lists the documents that were referenced in this guide. Appendix B includes a letter from the Environmental Protection Agency (EPA) that addresses handling of hazardous runoff from decontamination operations and liabilities. Appendix C is an EPA publication regarding the first responders' environmental liability due to decontamination runoff. Appendix D provides the decontamination equipment data fields, and appendix E provides an index of the rated decontamination equipment along with the equipment data sheets. Appendix F contains decontamination equipment that was identified during the market survey but not evaluated due to insufficient data or inappropriateness to the first responder community.

2. INTRODUCTION TO CBRN THREATS

The purpose of this section is to provide a description of CBRN threats. Section 2.1 provides a discussion of CAs, section 2.2 provides a discussion of TICs/TIMs, section 2.3 provides a discussion of BAs, and section 2.4 provides a discussion of radiological/nuclear materials.

2.1 Chemical Agents

Chemical agents are chemical substances that are intended for use in warfare or terrorist activities to kill, seriously injure, or seriously incapacitate people through their physiological effects. A CA attacks the organs of the human body in such a way that it prevents those organs from functioning normally. The results are usually disabling or even fatal. Chemical agents are specifically identified in the Chemical Weapons Convention (CWC) list to separate them from TICs/TIMs.

Chemical agents, when referred to in this guide, indicate nerve and blister agents only. The most common CAs are the nerve agents, GA (tabun), GB (sarin), GD (soman), GF (cyclosarin), and VX; and the blister agents, H and HD (sulfur mustard), HN (nitrogen mustard), and the arsenical vesicant L (lewisite). Other toxic chemicals such as hydrogen cyanide (characterized as a chemical blood agent by the military) are included as TIMs under section 2.2 of this guide. Toxic chemicals derived from living organisms are generically termed toxins and are included under section 2.3 of this guide.

2.1.1 Nerve Agents

This section provides an overview of nerve agents. A discussion of their physical and chemical properties, their routes of entry, and descriptions of symptoms is also provided.

2.1.1.1 Overview

Among lethal CAs, blister agents dominated World War I and nerve agents have had a dominant role since World War II. Nerve agents acquired their name because they affect the transmission of impulses in the nervous system. All nerve agents belong to the chemical group of organo-phosphorus compounds; many common herbicides and pesticides also belong to this chemical group. Nerve agents are stable, easily dispersed, highly toxic, and have rapid effects when absorbed both through the skin and the respiratory system. Nerve agents can be manufactured by means of fairly simple chemical techniques. The raw materials are inexpensive but some are subject to the controls of the CWC and the Australia Group Agreement. The nerve agents considered in this guide include the following:

- GB: A volatile nonpersistent CA mainly taken up through inhalation as a gas or aerosol.
- GA: A low volatility persistent CA that is taken up through skin contact and inhalation as a gas or aerosol.
- GD: A moderately volatile CA that can be taken up by skin contact or through inhalation as a gas or aerosol.

- GF: A low volatility persistent CA that is taken up through skin contact and inhalation as a gas or aerosol.
- VX: A low volatility persistent CA that can remain on material, equipment, and terrain for long periods. Uptake is mainly through the skin but also through inhalation as a gas or aerosol.

The term “volatility” refers to a substance’s ability to become a vapor at relatively low temperatures.

2.1.1.2 Physical and Chemical Properties

Nerve agents in the pure state are colorless liquids; however, VX may have a slight yellow color. The volatilities of nerve agents vary widely. A highly volatile (nonpersistent) substance poses a greater respiratory hazard than a less volatile (persistent) substance. The consistency of VX may be likened to motor oil and is therefore classified as belonging to the group of persistent chemical agents. Its effect is mainly through direct contact with the skin. GB is at the opposite extreme; being a volatile liquid (comparable with, e.g., water), it is mainly taken up through the respiratory system. The volatilities of GD, GA, and GF are between those of GB and VX. Table 2–1 lists the common nerve agents and some of their physical and chemical properties. Water is included in the table as a reference point for the nerve agents.

Table 2–1. Physical and chemical properties of common nerve agents

Property	GB	GA	GD	GF	VX	Water
Molecular weight	140.1	162.3	182.2	180.2	267.4	18
Density, g/cm ³ *	1.089	1.073	1.022	1.120	1.008	1
Boiling point, °F	316	464	388	462	568	212
Melting point, °F	-69	18	-44	-22	< -60	32
Vapor pressure, mm Hg *	2.9	0.07	0.4	0.06	0.0007	23.756
Volatility, mg/m ³ *	22000	610	3900	600	10.5	23010
Solubility in water, % *	Miscible with water	10	2	~2	Slightly	NA

*at 77 °F

NA: not applicable

2.1.1.3 Route of Entry

Nerve agents, either as a gas, aerosol, or liquid, enter the body through inhalation or through the skin. Poisoning may also occur through consumption of liquids or foods contaminated with nerve agents.

The route of entry also influences the symptoms developed and, to some extent, the sequence of symptom onset. Generally, the poisoning works most rapidly when the agent is absorbed through the respiratory system rather than other routes because the lungs contain numerous blood vessels; the inhaled nerve agent quickly diffuses into the blood and quickly reaches the target organs. If a person is exposed to a high concentration of nerve agent, e.g., 200 mg sarin/m³, death may occur within a couple of minutes.

The poisoning process works more slowly when the agent is absorbed through the skin. Since nerve agents are somewhat fat-soluble, they can easily penetrate the outer layers of the skin, but it takes longer for the agent to reach the deeper blood vessels. Consequently, the first symptoms do not occur until 20 min to 30 min after the initial exposure but subsequently, the poisoning process may be rapid if the total dose of nerve agent is high.

2.1.1.4 Symptoms

When exposed to a low dose of nerve agent sufficient to cause minor poisoning, the victim experiences characteristic symptoms such as increased production of saliva, a runny nose, and a feeling of pressure on the chest. The pupil of the eye becomes contracted (miosis), which impairs night vision. In addition, the capacity of the eye to change focal length is reduced, and short-range vision deteriorates causing the victim to feel pain when trying to focus on nearby objects. This is accompanied by a headache. Less specific symptoms are fatigue, slurred speech, hallucinations, and nausea.

Exposure to a moderate dose leads to more dramatic developments, and symptoms are more pronounced. Bronchoconstriction and secretion of mucus in the respiratory system lead to difficulty in breathing and to coughing. Discomfort in the gastrointestinal tract may develop into cramping and vomiting, and there may be involuntary discharge of urine and defecation. There may be excessive salivating, tearing, and sweating. If the poisoning is moderate, typical symptoms affecting the skeletal muscles may be muscular weakness, local tremors, or convulsions.

When exposed to a high dose of nerve agent, the muscular symptoms are more pronounced, and the victim may suffer convulsions and lose consciousness. The poisoning process may be so rapid that symptoms mentioned earlier may never have time to develop.

Nerve agents affect the respiratory muscles causing muscular paralysis. Nerve agents also affect the respiratory center of the central nervous system. The combination of these two effects is the direct cause of death. Consequently, death caused by nerve agents is similar to death by suffocation.

2.1.2 Blister Agents (Vesicants)

Blister agents, also known as vesicants, are chemicals that cause severe skin, eye, and mucosal pain and irritation. They are so named because of their ability to cause vesicular skin lesions. This section provides an overview of blister agents, including a discussion of their physical and chemical properties, their routes of entry, and descriptions of their symptoms. Given the similarity of their physiological effects, the traditional blister agents and the arsenical vesicants are discussed together in this section.

2.1.2.1 Overview

There are two major families of blister agents: mustards agents [nitrogen mustards (HN-1, HN-2, and HN-3), sulfur mustards (H, HD, and HT), and mustard–lewisite (HL)], and the arsenical vesicant lewisite (L). All blister agents are persistent and may be employed in the form of

colorless gases and liquids. They burn and blister the skin or any other part of the body they contact. Blister agents are likely to be used to produce casualties rather than fatalities, although exposure to such agents can be fatal. Supportive care for blister agent casualties is often manpower and logistically intensive.

2.1.2.2 Physical and Chemical Properties

Mustard agents are oily liquids ranging from colorless (in pure state) to pale yellow to dark brown, depending on the type and purity. They have a faint odor of mustard, onion, garlic, or horseradish, but because of olfactory fatigue, odor cannot be relied on for detection.³ In addition, mustard agent can cause injury to the respiratory system in such low concentrations that the human sense of smell cannot distinguish them.

At room temperature, mustard agent is a liquid with low volatility and is very stable during storage. Mustard agent can be easily dissolved in most organic solvents but has negligible solubility in water. In aqueous solutions, mustard agent decomposes into nonpoisonous products by means of hydrolysis but, since only dissolved mustard agent reacts, the decomposition proceeds very slowly. Oxidants such as hydrogen peroxide, (see sec. 3 for peroxide action), which is used for decontaminating/detoxifying chemical agents, react vigorously with mustard agent, and the reaction forms nonpoisonous oxidation products. Consequently, these substances are used for the decontamination of mustard agent.

Organic arsenical vesicants are not as common or as stable as the sulfur or nitrogen mustards. All arsenical vesicants are colorless to brown liquids. They are more volatile than mustard and have fruity to geranium-like odors. These types of vesicants are much more dangerous as liquids than as vapors. Absorption of either vapor or liquid through the skin in adequate dosage may lead to systemic intoxication or death. Table 2–2 presents the physical and chemical properties of some common blister agents. Water is included in the table as a reference point for the blister agents.

Table 2–2. Physical and chemical properties of common blister agents

Property	HD	HN-1	HN-2	HN-3	L	Water
Molecular weight	159.1	170.1	156.1	204.5	207.4	18
Density, g/cm ³	1.27 at 68 °F	1.09 at 77 °F	1.15 at 68 °F	1.24 at 77 °F	1.89 at 68 °F	1 at 77 °F
Boiling point, °F	421	381	167 at 15 mm Hg	493	374	212
Freezing point, °F	58	-61.2	-85	-26.7	64.4 to 32.18	32
Vapor pressure, mm Hg	0.072 at 68 °F	0.24 at 77 °F	0.29 at 68 °F	0.0109 at 77 °F	0.394 at 68 °F	23.756 at 77 °F
Volatility, mg/m ³	610 at 68 °F	1520 at 68 °F	3580 at 77 °F	121 at 77 °F	4480 at 68 °F	23010 at 77 °F
Solubility in water, %	<1 %	Sparingly	Sparingly	Insoluble	Insoluble	NA

NA: not applicable

³ <http://www.emedicine.com/emerg/topic901.htm>

2.1.2.3 Route of Entry

Most blister agents are relatively persistent and are readily absorbed by all parts of the body. Poisoning may also occur through consumption of liquids or foods contaminated with blister agents. These agents cause inflammation, blisters, and general destruction of tissues. In the form of gas or liquid, mustard agent attacks the skin, eyes, lungs, and gastrointestinal tract. Internal organs, mainly blood-generating organs, may also be injured as a result of mustard agent being taken up through the skin or lungs and transported into the body. Since mustard agent gives no immediate symptoms upon contact, a delay of between 2 h and 24 h may occur before pain is felt and the victim becomes aware of what has happened. By then, cell damage has already occurred. The delayed effect is a characteristic of mustard agent.

2.1.2.4 Symptoms

In general, both liquid and vaporous vesicants can penetrate the skin. The latent period for the effects from mustard is usually several hours (the onset of symptoms from vapors is 4 h to 6 h and the onset of symptoms from skin exposure is 2 h to 48 h). There is no latent period for exposure to lewisite.

Mild symptoms of mustard agent poisoning may include aching eyes with excessive tearing, inflammation of the skin, irritation of the mucous membranes, hoarseness, coughing, and sneezing. Normally, these injuries do not require medical treatment.

Severe injuries that are incapacitating and require medical care may involve eye injuries with loss of sight, the formation of blisters on the skin, nausea, vomiting, and diarrhea together with severe difficulty in breathing. Severe damage to the eye may lead to the total loss of vision.

The most pronounced effects on inner organs are injury to the bone marrow, spleen, and lymphatic tissue. This may cause a drastic reduction in the number of white blood cells 5 d to 10 d after exposure; a condition very similar to that after exposure to radiation. This reduction of the immune defense will complicate the already large risk of infection in people with severe skin and lung injuries.

The most common cause of death as a result of mustard agent poisoning is complications after lung injury caused by inhalation of mustard agent. Most of the chronic and late effects from mustard agent poisoning are also caused by lung injuries.

2.2 Toxic Industrial Chemicals/Toxic Industrial Materials

This section provides a general overview of TICs/TIMs as well as a list of the specific TICs considered in this guide. Since the chemistry of TICs/TIMs is so varied, it is not feasible to discuss specific routes of entry and descriptions of symptoms. Several documents, including *2004 Emergency Response Guidebook (A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident)*, November 2004, provide more detailed information about TICs/TIMs (see app. A).

TICs/TIMs are chemicals and materials other than CAs that have harmful effects on humans. TICs/TIMs are found in a variety of settings such as manufacturing facilities, maintenance areas,

and general storage areas. While acute exposure to some of these chemicals may not be immediately dangerous, these compounds may have extremely serious effects on an individual's health after multiple low-level exposures.

2.2.1 General

A TIC is a *specific type* of industrial chemical, i.e., one that has a LC_t₅₀ value (lethal concentration of a chemical vapor or aerosol for 50 % of the population multiplied by exposure time) less than 100000 mg min/m³ in any mammalian species and is produced in quantities exceeding 30 tons per year at one production facility. Although they are not as lethal as the highly toxic nerve agents, their ability to make a significant impact on the populace is assumed to be more related to the amount of chemical a terrorist can employ on the target(s) and less related to their lethality. None of these compounds are as highly toxic as the nerve agents, but they are produced in very large quantities (multi-ton) and are readily available; therefore, they may pose a far greater threat than CAs. For instance, sulfuric acid is not as lethal as the nerve agents, but it is easier to acquire and disseminate large quantities of sulfuric acid because large amounts of it are manufactured and transported everyday. It is assumed that a balance is struck between the lethality of a material and the amount of materials produced worldwide. TIMs include materials such as chemical, biological, and radioactive waste from industrial processes that can pose hazards to individuals.

Since TICs/TIMs are less lethal than the CAs, it is difficult to determine how to rank their potential for use by a terrorist. Physical and chemical properties for TICs such as ammonia, chlorine, cyanogen chloride, and hydrogen cyanide are presented in table 2–3. Water is included in the table as a reference point for the TICs. The physical and chemical properties for the remaining TICs identified in this guide can be found in *International Task Force 25: Hazard from Industrial Chemicals Final Report, April 1998* (see app. A).

Table 2–3. Physical and chemical properties of TICs

Property	Ammonia	Chlorine	Sulfuric Acid	Cyanogen Chloride	Hydrogen Cyanide	Water
Molecular weight	17.03	70.9	98.08	61.48	27.02	18
Density, g/cm ³	0.682 at 68 °F	3.214 at 77 °F	1.8	1.18 at 68 °F	0.990 at 68 °F	1 at 77 °F
Boiling point, °F	-28	-30	536	55	78	212
Freezing point, °F	-108	-150	37	20	8	32
Vapor pressure, Mm Hg at 77 °F	7408	5643	5.93 x 10 ⁻⁵	1000	742	23.756
Volatility, mg/m ³	6 782 064 at 77 °F	21 508 124 at 77 °F	Not available	2 600 000 at 68 °F	1 080 000 at 77 °F	23 010 at 77 °F
Solubility in water, %	89.9	1.5	Miscible, liberates much heat	Slightly	Highly soluble	NA

NA: not applicable

2.2.2 TIC Rankings

TICs are ranked into one of three categories that indicate their relative importance and assist in hazard assessment. Table 2–4 lists the TICs with respect to their hazard index ranking (high, medium, or low hazard).⁴ In addition, blood and choking agents are noted by single or double asterisks, respectively.

2.2.2.1 High Hazard

High hazard indicates a widely produced, stored or transported TIC that has high toxicity and is easily vaporized.

2.2.2.2 Medium Hazard

Medium hazard indicates a TIC that may rank high in some categories but lower in others such as number of producers, physical state, or toxicity.

2.2.2.3 Low Hazard

A low hazard overall ranking indicates that this TIC is not likely to be a hazard unless specific operational factors indicate otherwise.

2.2.2.4 Blood Agents

A blood agent is a TIC, which typically includes the cyanide group, affecting bodily functions by preventing the normal utilization of oxygen by body tissues. The term “blood agent” is a misnomer, however, because these agents do not actually affect the blood in any way. Rather, they exert their toxic effect at the cellular level by interrupting the electron transport chain in the inner membranes of mitochondria.

2.2.2.5 Choking Agents

A choking agent (or pulmonary agent) is a TIC designed to impede a victim’s ability to breathe, resulting in suffocation. Choking agents were preferred in WWI but have lost much of their tactical destructive utility since the invention of nerve agents. Choking agents are lethal and are very easily obtained.

⁴ Summary of the Final Report of the International Task Force 25 Hazard from Industrial Chemicals, 15 April 1999.

Table 2–4. TICs listed by hazard index

High	Medium	Low
Ammonia**	Acetone cyanohydrin	Allyl isothiocyanate
Arsine*	Acrolein	Arsenic trichloride
Boron trichloride	Acrylonitrile	Bromine**
Boron trifluoride	Allyl alcohol	Bromine chloride
Carbon disulfide	Allylamine	Bromine pentafluoride
Chlorine**	Allyl chlorocarbonate	Bromine trifluoride
Diborane	Boron tribromide	Carbonyl fluoride
Ethylene oxide	Carbon monoxide*	Chlorine pentafluoride
Fluorine	Carbonyl sulfide	Chlorine trifluoride
Formaldehyde	Chloroacetone	Chloroacetaldehyde
Hydrogen bromide	Chloroacetonitrile	Chloroacetyl chloride
Hydrogen chloride**	Chlorosulfonic acid	Crotonaldehyde
Hydrogen cyanide*	Diketene	Cyanogen chloride*
Hydrogen fluoride	1,2-Dimethylhydrazine	Dimethyl sulfate
Hydrogen sulfide	Ethylene dibromide	Diphenylmethane-4,4'-diisocyanate
Nitric acid, fuming	Hydrogen selenide	Ethyl chloroformate
Phosgene**	Methanesulfonyl chloride	Ethyl chlorothioformate
Phosphorus trichloride	Methyl bromide**	Ethyl phosphonothioic dichloride
Sulfur dioxide	Methyl chloroformate	Ethyl phosphonic dichloride
Sulfuric acid	Methyl chlorosilane	Ethyleneimine
Tungsten hexafluoride	Methyl hydrazine	Hexachlorocyclopentadiene
	Methyl isocyanate**	Hydrogen iodide
	Methyl mercaptan	Iron pentacarbonyl
	Nitrogen dioxide	Isobutyl chloroformate
	Phosphine**	Isopropyl chloroformate
	Phosphorus oxychloride	Isopropyl isocyanate
	Phosphorus pentafluoride	n-Butyl chloroformate
	Selenium hexafluoride	n-Butyl isocyanate
	Silicon tetrafluoride	Nitric oxide
	Stibine	n-Propyl chloroformate
	Sulfur trioxide	Parathion
	Sulfuryl chloride	Perchloromethyl mercaptan
	Sulfuryl fluoride**	sec-Butyl chloroformate
	Tellurium hexafluoride	tert-Butyl isocyanate
	n-Octyl mercaptan	Tetraethyl lead
	Titanium tetrachloride	Tetraethyl pyrophosphate
	Trichloroacetyl chloride	Tetramethyl lead
	Trifluoroacetyl chloride	Toluene 2,4-diisocyanate
		Toluene 2,6-diisocyanate

* Blood agent

** Choking agent

2.3 Biological Agents

This section provides a description of the types, or grouping of BAs likely to be used in a terrorist attack. There are three important classes of BAs under discussion: bacterial (including rickettsiae), viral, and biological toxins.

2.3.1 Bacterial Agents

Bacteria are small, single-celled organisms, many of which can be grown on solid or liquid culture media. During starvation conditions, some types of bacteria can transform into spores that are more resistant to cold, heat, drying, chemicals, and radiation than the bacterium itself. Most bacteria do not cause disease in human beings, but those that do cause disease act by two differing mechanisms, i.e., by invading the tissues or by producing poisons (toxins). Many bacteria, such as *Bacillus anthracis*, have properties that make them attractive as potential warfare agents:

- Retained potency during growth and processing to the end product (biological weapon).
- Long “shelf-life.”
- Low biological decay as an aerosol.

Other bacteria require stabilizers to improve their potential for use as biological weapons.

Rickettsiae are bacteria that are obligate intracellular parasites associated with arthropods vectors including insects (fleas and lice) and arachnids (ticks and mites). They are intermediate in size, between most bacteria and viruses, and possess certain characteristics common to both bacteria and viruses. Like bacteria, they have metabolic enzymes and cell membranes, use oxygen, and are susceptible to broad-spectrum antibiotics; like viruses, they grow only in living cells. Most rickettsiae are spread by the bites of arthropod vectors and are not spread through human contact.

Table 2–5 lists some of the common bacterial agents along with possible methods of dissemination, incubation period, symptoms, and treatment.

Table 2–5. Bacterial agents

Biological Agent	<i>Bacillus anthracis</i>	<i>Burcella abortus</i> , <i>B. melitensis</i> , <i>B. suis</i> , <i>B. canis</i>	<i>Escherichia coli</i> serotype (O157:H7)	<i>Francisella tularenius</i>
Disease	Anthrax	Brucellosis	Diarrhea, hemolytic uremic syndrome	Tularemia
Likely Method of Dissemination	1. Spores in aerosol 2. Sabotage (food) 3. Cutaneous—contact with contaminated animal product	1. Aerosol 2. Sabotage (food)	1. Water 2. Food supply contamination	1. Aerosol 2. Water and food supply contamination 3. Ticks
Transmissible Person-to-Person	No	Rare	Unknown, evidence passed person-to-person in daycare or nursing homes	No
Incubation Period	1 d to \geq 43 d	1 wk to 3 wk, sometimes months	Unknown	2 d to 10 d
Duration of Illness	3 d to 5 d (usually fatal)	Unknown	5 d to 10 d (most cases)	>2 wk
Fatality Rate	Inhalation anthrax: after symptoms appear, almost always fatal, regardless of treatment Intestinal: 25 % to 60 % fatality rate Contact or cutaneous anthrax: 5 % to 20 % fatality rate	Low	Up to 15 % if develop hemolytic uremic syndrome (HUS); 5 % if develop thrombotic thrombocytopenic purpura (TTP)	In general, tularemia has a slower progression of illness and a lower case-fatality rate than anthrax; between 1985 and 1992, 1409 cases and 20 deaths were reported in the U.S., a case fatality rate of 1.4 %
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	Currently no human data; however, the anthrax attack of 2001 showed that anthrax could be successfully treated	Vaccine under evaluation	No vaccine	No commercially available vaccine
Symptoms and Effects	<u>Inhalation</u> : Flu-like, upper-respiratory distress; fever and shock in 3 d to 5 d, followed by death <u>Intestinal</u> : nausea, loss of appetite, vomiting, and fever are followed by abdominal pain, vomiting of blood, and severe diarrhea <u>Cutaneous</u> : Ulcer with black necrotic center, followed by swollen lymph glands	Irregular prolonged fever, profuse sweating, chills, joint and muscle pain, persistent fatigue	Gastrointestinal (diarrhea, vomiting) dehydration; in severe cases, cardiac arrest and death, HUS, or TTP	<u>Aerosol exposure</u> : chills, sustained fever, prostration, tendency for pneumonia, enlarged, painful lymph nodes, headache, malaise, anorexia, nonproductive cough <u>Cutaneous</u> : ulcers on the skin or mouth, swollen and painful lymph glands, swollen and painful eyes, and a sore throat
Treatment	Antibiotics approved for anthrax are ciprofloxacin, tetracyclines (including doxycycline), and penicillins; if exposed to anthrax, but symptom free, 60 d treatment with one of the antibiotics is given to reduce the risk or progression of disease due to inhaled anthrax	Antibiotics	Antibiotics available; most recover without antibiotics within 5 d to 10 d; do not use antidiarrheal agents	Antibiotics: parenteral antimicrobial therapy recommended A vaccine for tularemia is under review but is not currently available in the U.S.
Potential as Biological Agent	High, Iraqi and USSR biological programs worked to develop anthrax as a bio-weapon	Unknown	Unknown	High, if delivered via aerosol form (highly infectious, 90 % to 100 %)

Table 2–5. Bacterial agents–Continued

Biological Agent	<i>Vibrio cholerae</i>	<i>Burkholderia mallei</i>	<i>Pseudomonas pseudomallei</i>	<i>Yersinia pestis</i>	<i>Salmonella typhi</i>
Disease	Cholera	Glanders	Melioidosis	Plague (pneumonic and bubonic)	Typhoid fever
Likely Method of Dissemination	1. Sabotage (food and water)	1. Aerosol 2. Cutaneous	1. Food contamination (rodent feces) 2. Inhalation	1. Aerosol (pneumonic) 2. Infected fleas (bubonic and pneumonic)	1. Contact with infected person 2. Contact with contaminated substances
Transmissible Person-to-Person	Rare	No	No	High (pneumonic)	High
Incubation Period	3 d to 5 d	3 d to 5 d	Days	1 d to 3 d	7 d to 14 d
Duration of Illness	>1 wk	Unknown	4 d to 20 d	1 d to 6 d (usually fatal)	Unknown
Fatality Rate	Low with fluid replacement	50 % to 70 %	Although bloodstream infection with melioidosis can be fatal, the other types of the disease are nonfatal	5 % to 10 % if treated 1) Bubonic: 30 % to 75 % if untreated 2) Pneumonic: 95 % if untreated	<1 % if treated; 10 % to 14 % if untreated
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	No data on aerosol	No vaccine	No vaccine	Vaccine not available	Oral vaccine (Vivotif) and single dose injectable vaccine (capsular polysaccharide antigen); both vaccines are equally effective and offer 65 % to 75 % protection against the disease
Symptoms and Effects	Sudden onset with nausea, vomiting, diarrhea, rapid dehydration, toxemia, and collapse	Skin lesions, ulcers in skin, mucous membranes, and viscera; if inhaled, upper respiratory tract involvement	Cough, fever, chills, muscle/joint pain, nausea, and vomiting; progressing to death	Enlarged lymph nodes in groin; septicemia (spleen, lungs, meninges affected)	Prolonged fever, lymph tissue involvement, ulceration of intestines, enlargement of spleen, rose-colored spots on skin, constipation or diarrhea
Treatment	Replenish fluids and electrolytes; a prepackaged oral rehydration solution (a mixture of sugar and salts to be dissolved in water) is available	Drug therapy (streptomycin and sulfadiazine) is somewhat effective	Antibiotics (doxycycline, chlorothenicol, tetracycline) and sulfadiazine	Antibiotics: streptomycin, or gentamicin if streptomycin not available, tetracyclines and chloramphenicol can be used	Antibiotics (amoxicillin or cotrimoxazole) shorten period of communicability and cure disease rapidly
Potential as Biological Agent	Not appropriate for aerosol delivery	Unknown	Moderate—no vaccine available	High—highly infectious, particularly pneumonic (aerosol) form; lack of stability and loss of virulence complicate its use	Not likely to be deployed via aerosol; more likely for covert contamination of water or food

Table 2–6 lists the common rickettsiae, along with possible methods of dissemination, incubation periods, symptoms, and treatment.

Table 2–6. Rickettsiae

Biological Agent or Source	<i>Rickettsia typhus</i>	<i>Rickettsia prowazekii</i>	<i>Coxiella burnetii</i> (<i>Rickettsia burnetii</i>)	<i>Rickettsia rickettsii</i>
Disease	Endemic Typhus	Epidemic Typhus	Q Fever	Rocky Mountain Spotted Fever
Likely Method of Dissemination	Aerosol	Aerosol	1. Sabotage (food supply) 2. Aerosol	Aerosol
Transmissible Person-to-Person	No	No	Rare	No
Incubation Period	6 d to 14 d	6 d to 15 d	14 d to 26 d	3 d to 14 d
Duration of Illness	Unknown	Unknown	Weeks	Unknown
Fatality Rate	1 %, increasing in people >50 yr old	10 % to 40 % untreated; increases with age	Very low	15 % to 20 % untreated (higher in adults); treated—death rare with specific therapy (tetracycline or chloramphenicol)
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	Unknown	Vaccine confers protection of uncertain duration	94 % protection against 3500 LD ₅₀ in guinea pigs	No vaccine
Symptoms and Effects	Sudden onset of headache, chills, prostration, fever, pain; maculae eruption on 5 th day to 6 th day on upper body, spreading to all but palms, soles, or face, but milder than epidemic form	Sudden onset of headache, chills, prostration, fever, pain; maculae eruption on 5 th day to 6 th day on upper body, spreading to all but palms, soles, or face	Mild symptoms (chills, headaches, fever, chest pains, perspiration, loss of appetite)	Fever and joint pain, muscular pain; skin rash that spreads rapidly from ankles and wrists to legs, arms, and chest; aversion to light
Treatment	Antibiotics (tetracycline and chloramphenicol); supportive treatment and prevention of secondary infections	Antibiotics (tetracycline and chloramphenicol); supportive treatment and prevention of secondary infections	Tetracycline (500 mg/6 h, 5 d to 7 d) or doxycycline (100 mg/12 h, 5 d to 7 d) also, combined erythromycin (500 mg/6 h) and rifampin (600 mg/d)	Antibiotics—tetracycline or chloramphenicol
Potential as Biological Agent	Uncertain—broad range of incubation (6 d to 14 d) period could cause infection of force deploying BA	Uncertain—broad range of incubation (6 d to 14 d) period could cause infection of force deploying BA	Highly infectious if delivered in aerosol form; dried agent is very stable; aerosol form is stable	Unknown

2.3.2 Viral Agents

Viruses are a simple type of microorganism that consists of a nucleocapsid containing a protein coat containing genetic material, either RNA (ribonucleic acid) or DNA (deoxyribonucleic acid). Because viruses lack a system for their own metabolism, they require living hosts (cells of an infected organism) for replication and cannot be cultivated in synthetic nutritive solutions. However, host cells can be cultivated in synthetic nutrient solutions and then infected with a virus

specific to the host cells. In addition, viruses are much smaller in size than bacteria. As BAs, they are attractive because many do not respond to antibiotics. However, their incubation periods are normally longer than for other BAs, so incapacitation of victims may be delayed. Table 2–7 lists the viral agents of greatest concern, along with possible methods of dissemination, incubation period, symptoms, and treatment.

Table 2–7. Viral agents

Biological Agent or Source	Filovirus		Tacaribe Virus complex Arenavirus	Phlebovirus	Variola major, Orthopoxvirus
	Disease	Marburg Hemorrhagic Fever	Ebola Hemorrhagic Fever	Argentine Hemorrhagic Fever (Junin)	Rift Valley Fever
Likely Method of Dissemination	Aerosol	Direct contact Aerosol (BA)	Not known	Mosquito-borne; aerosols or droplets	Aerosol
Transmissible Person-to-Person	Moderate	Moderate	Moderate	Unknown	High
Incubation Period	5 d to 7 d	4 d to 16 d	7 d to 16 d	2 d to 5 d	7 d to 17 d
Duration of Illness	Unknown	Death between 7 d to 16 d	16 d	2 d to 5 d	4 wk
Fatality Rate	23 % to 25 %	50 % to 90 %	18 %	<1 %	20 % to 40 % (Variola major) <1 % (Variola minor)
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	No vaccine	Experimental	No vaccine	Inactivated vaccine available in limited quantities	Vaccine protects against infection within 3 d to 5 d of exposure
Symptoms and Effects	Sudden onset of fever, malaise, muscle pain, headache, and conjunctivitis, followed by sore throat, vomiting, diarrhea, rash, and both internal and external bleeding (begins 5 th day); liver function may be abnormal and platelet function may be impaired	Mild febrile illness, then vomiting, diarrhea, rash, kidney and liver failure, internal and external hemorrhage (begins 5 th day), and petechiae	Hemorrhagic syndrome, chills, sweating, exhaustion and stupor	Febrile illness, sometimes abdominal tenderness; rarely shock, ocular problems	Sudden onset of fever, headache, backache, vomiting, marked prostration, and delirium; small blisters form crusts which fall off 10 d to 40 d after first lesions appear
Treatment	No specific treatment exists; severe cases require intensive supportive care, as patients are frequently dehydrated and in need of intravenous fluids	No specific therapy; supportive therapy essential	No specific therapy; supportive therapy essential	No studies, but IV ribavirin (30 mg/kg/6 h for 4 d, then 7.5 mg/kg/8 h for 6 d) should be affective	Vaccinia immune globulin (VIG) and supportive therapy
Potential as Biological Agent	High—weaponized by former Soviet Union biological program	Unknown—possibly weaponized by former Soviet Union	Unknown	Difficulties with mosquitoes as vectors	Possible, especially since routine smallpox vaccination programs have been eliminated worldwide; weaponized by former Soviet Union

2–7. Viral agents–Continued

Biological Agent or Source	Flaviviruses		Nairovirus	Alphavirus
Disease	Yellow Fever Virus	Dengue Fever Virus (DEN-1, DEN-2, DEN-3, and DEN-4)	Congo-Crimean Hemorrhagic Fever Virus	Venezuelan Equine Encephalitis
Likely Method of Dissemination	Mosquito-borne Aerosol	Mosquito-borne (<i>Aedes aegypti</i>)	Insect vectors	Aerosol
Transmissible Person-to-Person	Low	No	Yes	No
Incubation Period	3 d to 6 d	3 d to 15 d	7 d to 12 d	1 d to 6 d
Duration of Illness	2 wk	1 wk	9 d to 12 d	Days to weeks
Fatality Rate	10 % to 20 % death in severe cases or full recovery after 2 d to 3 d	5 % average case fatality	15 % to 20 %	<1 %
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	Vaccine available; confers immunity for >10 yr	Vaccine available	No vaccine available; prophylactic ribavirin may be effective	Experimental only: TC-83 protects against 30 LD ₅₀ to 500 LD ₅₀ in hamsters
Symptoms and Effects	Sudden onset of chills, fever, prostration, aches, muscular pain, congestion, severe gastrointestinal disturbances, liver damage and jaundice; hemorrhage from skin and gums	Sudden onset of fever, chills, intense headache, pain behind eyes, joint and muscle pain, exhaustion and prostration; occasionally produces shock and hemorrhage, leading to death	Fever, easy bleeding, petechiae, hypotension and shock; flushing of face and chest, edema, vomiting, diarrhea	Sudden illness with malaise, spiking fevers, rigors, severe headache, photophobia, and myalgias
Treatment	No specific treatment; supportive treatment (bed rest and fluids) for even the mildest cases	No specific therapy; supportive therapy essential	No specific treatment	Supportive treatments only; there is a vaccine for laboratory workers
Potential as Biological Agent	High, if efficient dissemination device is employed	Unknown	Unknown	High—former U.S. and U.S.S.R. offensive biological programs weaponized both liquid and dry forms for aerosol distribution

2.3.3 Biological Toxins

Biological toxins have very distinct characteristics that differentiate them from the CAs. Unlike CAs, biological toxins are not manmade or volatile; they are generally much more toxic per weight than CAs. With the exception of mycotoxins, biological toxins are not dermally active. Biological toxins can cause significant illness at concentrations much lower than the level

required for lethality. As a result, they are highly appealing as weapons of bioterrorism not only for their lethality, but also because of their ability to incapacitate humans. Table 2–8 lists the common biological toxins along with possible methods of dissemination, incubation period, symptoms, and treatment.

Table 2–8. Biological toxins

Biological Source	<i>Clostridium botulinum</i>	<i>Staphylococcus aureus</i>	Mycotoxins of the Trichothecene group	Isolated from Castor Beans	Marine Dinoflagellate
Toxin/Disease	Botulinum toxin—7 antigenically different botulinum toxins (A, B, C, D, E, F, and G); Types A, B, E, and F responsible for most human cases	Staphylococcal enterotoxin B (SEB)	T-2 mycotoxins (yellow rain)	Ricin	Saxitoxin
Likely Method of Dissemination	1. Aerosol 2. Sabotage (food and water)	1. Sabotage (food supply) 2. Aerosol	1. Aerosol 2. Sabotage	1. Aerosol 2. Sabotage (food & water)	In biological scenario, inhalation or toxic projectile
Transmissible Person-to-Person	No	No	No	No	No
Incubation Period	Variable (hours to days)	3 h to 12 h	2 h to 4 h	Hours to days	5 min to 1 h
Duration of Illness	Death in 24 h to 72 h; lasts months if not lethal	Hours	Days to months	Days—death within 10 d to 12 d for ingestion	Death in 2 h to 12 h
Fatality Rate	70 %, untreated <5 % treated	For aerosol exposures the ED ₅₀ is 0.0004 mcg/kg, and the LD ₅₀ is 0.02 mcg/kg	Moderate	100 %, without treatment LD ₅₀ , 30 mcg/kg (gastrointestinal) LD ₅₀ , 3 mcg/kg (aerosol) LD ₅₀ similar to aerosol (parenteral)	High without respiratory support
Vaccine Efficacy (for aerosol exposure)/ Antitoxin	Botulism antitoxin [Investigational New Drug (IND)] Prophylaxis toxoid (IND) Toxolide	No vaccine	No vaccine	No vaccine	No vaccine

Table 2–8. Biological toxins–Continued

Biological Source	<i>Clostridium botulinum</i>	<i>Staphylococcus aureus</i>	Mycotoxins of the Trichothecence group	Isolated from Castor Beans	Marine Dinoflagellate
Symptoms and Effects	Ptosis; weakness, dizziness, dry mouth and throat, blurred vision and diplopia, flaccid paralysis	Sudden chills, fever, headache, myalgia, nonproductive cough, nausea, vomiting, and diarrhea	Skin—pain, pruritis, redness and vesicles, sloughing of epidermis; respiratory—nose and throat pain, discharge, sneezing, coughing, chest pain, hemoptysis	<u>Aerosol</u> —Weakness, fever, cough, pulmonary edema, severe respiratory distress <u>Parenteral</u> —local necrosis of muscle and regional lymph nodes with organ involvement and death <u>Gastrointestinal</u> —severe gastroenteritis, GI hemorrhage, and hepatic, splenic, and renal necrosis; death may occur secondary to circulatory collapse	Light-headedness, tingling of extremities, visual disturbances, memory loss, respiratory distress, death
Treatment	Antitoxin with respiratory support (ventilation)	Pain relievers and cough suppressants for mild cases; for severe cases, may need mechanical breathing and fluid replenishment	No specific antidote or therapeutic regimen is available; supportive and symptomatic care	Oxygen, plus drugs to reduce inflammation and support cardiac and circulatory functions; if ingested, empty the stomach and intestines; replace lost fluids	Induce vomiting, provide respiratory care, including artificial respiration
Potential as Biological Agent	Not very toxic via aerosol route; extremely lethal if delivered orally	Moderate—could be used in food and limited amounts of water (for example, at salad bars); LD ₅₀ is sufficiently small to prevent detection	High—used in aerosol form (“yellow rain”) in Laos, Kampuchea and Afghanistan (through 1981)	Has been used in 1978—Markov murder; included on prohibited Schedule I chemicals list for Chemical Weapons Convention; high potential for use in aerosol form	Moderate, aerosol form is highly toxic

2.4 Radiological/Nuclear Materials

Radiological materials are radioactive substances (i.e., substances that emit high-energy particles or gamma rays while undergoing radioactive decay). Nuclear materials are the key ingredients in nuclear weapons and include fissile, fissionable, and source material.

A radiation dispersion device (RDD) is a weapon that combines radioactive material and conventional explosives. It is designed to disperse radioactive material over a wide area;

however, lethality from the conventional explosives is likely to be a more immediate hazard than injury from the radioactive material contained in the RDD. The purpose of the RDD is therefore intended to seriously incapacitate and to cause disruption by psychologically and financially impacting the areas in or around the target. The ingredients needed to make an RDD are readily available and can be found in industry, medical facilities, and university laboratories, but they cannot be used for a device that will generate an explosive nuclear yield.

Nuclear weapons include the atomic bomb (nuclear fission), the hydrogen bomb (nuclear fusion), boosted fission weapons, and the neutron bomb. The atomic bomb is a fission reactor designed to release as much energy as possible in the shortest time possible, causing an explosion and stopping the chain reaction. The uncontrolled fission chain reaction has a thousand times more energy than any chemical explosive such as dynamite. The radiological materials used most often in nuclear weapons are concentrated forms of uranium-235 (the isotope of uranium with an atomic mass of 235) and plutonium-239.

2.4.1 Terminology

Some common terms used when discussing radiation or nuclear materials include radioactivity, radioactive decay, half-life, specific activity, and radiation energy.

- **Radioactivity** is the property of disintegrating spontaneously, with loss of energy through emission of a charged particle (electron, positron, or alpha particle) or a gamma ray or a neutron.
- **Radioactive decay** occurs when an energetically unstable nucleus transforms itself to a more energetically favorable, or stable, state. In the process of change, the unstable nucleus emits radiation in order to become more stable.
- **Half-life** is the amount of time required for a radiological material to lose one half of its radioactivity. Half-lives of radioactive materials differ from one to another and range from a fraction of a second to millions of years. Some radiological materials decay quickly into nonradioactive material.
- **Specific activity** of a radiological material is inversely proportional to its half-life, and is an indication of the decay rate per unit mass of the radiological material.
- **Radiation energy** is the energy carried by a radiated particle. It is released by the atom as it decays, i.e., the energy that the radiation carries as it travels. Radiation energy is measured in electron volts (eV).

2.4.2 Types of Radiation

Radiation is energy in the form of electromagnetic waves or charged particles. Electromagnetic waves of radiation include x-rays and gamma rays, and particulate radiation includes alpha, beta, and neutron radiation. Gamma rays and neutrons can penetrate the skin and reach internal organs and tissues. Alpha particles and all but extremely high-energy beta particles are not considered penetrating radiation. X-rays are similar to gamma rays but are only from manmade sources.

Alpha particles, beta particles, and gamma rays are considered ionizing radiation because they interact with nearby atoms as they travel through matter. Neutron particles are considered indirect ionizing radiation because ionization results from a collision between a neutron and the nucleus of an atom. Radio waves, microwaves, visible light, and infrared rays from a heat lamp are sources of nonionizing radiation. Nonionizing radiation has lower energy and longer wavelengths than ionizing radiation. Although nonionizing radiation is not strong enough to affect the structure of atoms it contacts, it is strong enough to heat tissue and cause harmful biological effects. Alpha particles, beta particles, gamma/x-rays, and neutrons are discussed in the following sections.

2.4.2.1 Alpha Particles

Alpha particles are positively (+) charged particles emitted from the nucleus of an atom. They are relatively large and very heavy consisting of two protons and two neutrons, identical to the nucleus of a helium atom. Because of this strong positive charge and large mass, an alpha particle cannot penetrate far into any material and can be stopped by a sheet of paper or an inch of air, or by the dead layers of the skin or by a uniform. Inhalation of radioactive dust is a serious risk since particles may remain in the lung for a long time and are in close contact with living cells. Ingestion is also a serious threat, but the residence time in the body is usually shorter. Alpha particles are a negligible external hazard, but when emitted from an internalized radionuclide source, can cause significant cellular damage in the region immediately adjacent to their physical location.

2.4.2.2 Beta Particles

Beta particles are very light particles (about 2000 times less mass than a proton) with a mass and charge equal to that of an electron (-1) or a positron (+1). Because of their light mass and single charge, beta particles can penetrate more deeply than alpha particles. They can be stopped by a few millimeters of aluminum. Although beta particles only travel short distances into tissue, in large quantities they can produce damage to the basal stratum of the skin. The lesion produced by the beta particle, or “beta burn” appears similar to a thermal burn. Beta emitters are also more serious threats when inhaled or ingested due to longer potential exposure time and proximity to tissue. Beta particles are the most likely decay particle from lighter nuclei. The light nuclei may be produced in reactors from fission fragments or by neutron or particle beam irradiation of stable nuclei.

2.4.2.3 Gamma Rays

Gamma rays, similar to x-rays, are short wavelength uncharged radiation, wavelengths of electromagnetic radiation that are higher in frequency and energy than visible and ultraviolet light. They are emitted from the nucleus of an atom. Being electromagnetic (or photons), gamma/x-rays travel at the speed of light and have extremely high penetrating power. They can penetrate skin, paper, and thin metals but can be stopped by lead, concrete, or steel. Both gamma ray and x-ray radiation are considered an external hazard; they both have the ability to cause internal tissue damage whether the source is internal or external. Gamma rays are almost always accompanied by alpha or beta particles.

2.4.2.4 Neutron Particles

Neutron particles are uncharged elementary particles that have a mass of 1 atomic mass unit, approximately the same as that of the proton. Compared to gamma rays, neutrons cause 20 times more damage to tissue. Neutron particles come from splitting, or fissioning of certain atoms inside a nuclear reactor, or can be produced spontaneously from select radionuclides (uranium-235 and plutonium-239; or the man made radionuclide californium-252, the most commonly used source for spontaneous fission). Neutrons do not directly interact with electrons, but interaction occurs after the collision between a neutron and the nucleus of an atom, causing neutron-induced gamma activity (NIGA), or induced radiation. Because neutrons scatter as they travel, they lose some of their energy. Moderate to low-energy neutron radiation can be shielded by materials with a high hydrogen content, such as water (H₂O) or plastics with neutron absorbers; high-energy neutrons can be shielded by more dense materials, such as steel or lead. Like gamma radiation, neutrons are an external, whole-body hazard because of their high penetrating ability; however, compared to gamma rays, neutrons cause 20 times more damage to tissue.

2.4.2.5 Radionuclides

Radionuclides, often referred to as radioactive isotopes or radioisotopes, are atoms with an unstable nucleus that may either occur naturally or be artificially produced (i.e., by nuclear reactors). Gamma rays and/or subatomic particles are emitted as the radionuclide undergoes radioactive decay. See section 2.4.6, table 2–11, for a list of some radionuclides along with the harmful effects of radioactive contamination.

2.4.2.6 Background Radiation

Background radiation refers to the general level of natural and manmade radiation against which a particular added radiation component has to be considered. The biggest contributor to background radiation is radon, which accounts for roughly 54 % of annual exposure. Other naturally occurring background radiation includes cosmic radiation (8 %) and rocks and soil (8 %). Manmade sources of radiation exposure account for only a small portion of annual exposure. Manmade sources include medical x-rays (11 %), nuclear medicine (4 %), and a variety of consumer products, including smoke detectors, camping lantern mantles, timepieces, jewelry, rock collections, and pottery.

2.4.3 Properties of Radiological/Nuclear Materials

Some important properties that radiological/nuclear materials exhibit include: the type of radiation emitted, half-life, specific activity, decay energy, and radiation energy. Table 2–9 displays these properties for some common radiological materials.

Table 2–9. Basic properties of common radiological/nuclear materials

Isotope	Half-Life (years)	Specific Activity (Ci/gram)	Decay Energy (MeV)	Radiation Energy (MeV)		
				Alpha (α)	Beta (β)	Gamma (γ)
Americium-241	432.2	3.5	5.37	5.5	0.052	0.033
Californium-252*	2.645	540	—	5.9	0.0056	0.0012
Cesium-137	30.17	88	1.176	—	0.19, 0.065	0.60
Cobalt-60	5.27	1100	2.824	—	0.067	1.17, 1.33
Iodine-131	8 d	130000	0.971	—	0.19	0.38
Iridium-192	73.83 d	9200	1.04	—	0.22	0.82
Plutonium-238	87.7	17	5.46	5.5	0.011	0.0018
Plutonium-239	24110	0.063	5.243	5.1	0.0067	<0.001
Plutonium-240	6564	0.23	5.255	5.2	0.011	0.0017
Strontium-90	29.1	140	0.2	—	0.20, 0.94	—
Tritium (H-3)	12.32	9800	18.6 keV	—	0.0057	—
Uranium-235	700 million	0.0000022	4.6	4.4	0.049	0.16
Uranium-238	4.47 billion	0.00000034	4.185	4.2	0.010	0.0014

* Manmade isotope produced in nuclear reactors. Average neutron energy = 2.15 MeV; average photon energy = 0.8 MeV.

2.4.4 Pathways of Exposure

The properties of a radiological material affect the pathway by which a person receives exposure. Exposure to radiological material can be external and/or internal (inhalation or ingestion). A person can receive an external dose of radiation by standing near a gamma or high-energy beta-emitting source. A person can receive an internal dose of radiation by ingesting or inhaling radioactive material. The external exposure stops when the person leaves the area of the source. The internal exposure continues until the radioactive material is flushed from the body by natural processes or decays.

There are also different dangers associated with the type of radiation emitted. One type of radiation of major concern is ionizing radiation because of its ability to cause damage to matter, particularly living tissue. Three types of ionization radiation include alpha particles, beta particles, and gamma rays, which are all extremely dangerous at high levels.

2.4.4.1 Direct (External) Exposure

External exposure occurs when the whole body or part of the body comes in contact with penetrating radiation from an external radioactive source. Body exposure can lead to radiation burns of the skin, which appear red, swollen, and blistered. Burns do not usually appear immediately.

The greatest concern to external exposure is gamma radiation, followed by beta particles, and lastly alpha particles. Alpha particles will not penetrate skin, but can enter the body through

open wounds. Beta particles can burn skin and can damage eyes. Gamma rays can penetrate the whole body, even after traveling long distances.

2.4.4.2 Internal Exposure

Internal exposure occurs when a radioactive substance is taken into the body by ingestion or inhalation. Exposure by **inhalation** happens when radiological materials (dust, smoke, radon, etc.) are breathed into the body through the lungs. Radioactive materials that are alpha and beta emitters cause the most concern for inhalation exposure because they damage cellular material and DNA in the process of transferring their energy to the surrounding tissue. If the radioactive material decays slowly, the exposure, and consequently the damage, will continue for a long time, which can eventually lead to cancer. Inhalation of radioactive dust is a serious risk since particles may remain in the lung for a long time.

Internal exposure through **ingestion** is also a serious threat, but the residence time in the body is usually shorter because the radioactive material may be eliminated by the body fairly quickly. Radioactive materials containing alpha and beta emitters are the greatest concern for exposure by ingestion. Ingestion can expose the entire intestinal tract creating the same concern to these internal organs as inhalation exposure does for the lungs. Also, some radioactive material can be absorbed by the kidneys and the bones.

Internal exposure can also occur when radioactive materials enter the body through the skin by **absorption**, or when they enter openings in the skin left by cuts or wounds.

Any of these types of exposure can be minimized by time, distance, or shielding. Limiting the amount of time spent around radiological material minimizes the exposure that can occur. Keeping as far as possible from the radiological material will decrease the chances of contamination and exposure. If a person has to be near a radiological material, shielding (keeping something between the person and the source) is the best defense against radiation. Following these guidelines can help to keep the symptoms of radiation exposure to a minimum.

2.4.5 Physiological Signs and Symptoms

The physiological signs and symptoms associated with radiological materials are highly dependent upon the type of radiation exposure. Symptoms of radiation exposure often do not occur immediately but can occur hours or even days later. The symptoms of radiation exposure are either acute or chronic.

Acute symptoms are those arising from a high dose of radiation and may include nausea, vomiting, diarrhea, hair loss, and radiation burns. The most severe sign of high radiation exposure is Acute Radiation Syndrome or radiation poisoning. Victims will experience all the symptoms of acute radiation exposure for a longer period of time and with more severity. Oftentimes the victims seem to recover and then relapse with even worse symptoms. Radiation poisoning can last from a few hours to a few months. If a victim does not recover from the symptoms of radiation poisoning, they will usually die within a few months.

Chronic signs of radiation exposure can occur years after the fact. These are due to long-term low levels of exposure. The primary sign is cancer. Radiation's presence in a body's cells disrupts their control processes and can cause them to grow uncontrollably. The radiation exposure can also cause DNA mutations. Table 2–10 lists a number of radioactive elements along with some physical effects of exposure.

Table 2–10. Physical effects of radiological exposure

Element	Respiratory absorption, deposition	GI absorption, deposition	Skin wound absorption	Primary toxicity
Americium-241	75 % absorbed, 10 % retained	Minimal, usually insoluble	Rapid in first few days	Skeletal deposition Marrow suppression Hepatic deposition
Cesium-137	Completely absorbed Follows potassium	Completely absorbed Follows potassium	Completely absorbed Follows potassium	Renal excretion Beta and gamma emissions
Cobalt-60	High absorption Limited retention	<5 % absorption	Unknown	Gamma emitter
Iodine-131	High absorption Limited retention	High absorption Limited retention	High absorption Limited retention	Thyroid ablation/ carcinoma
Phosphorus-32	High absorption Limited retention	High absorption Limited retention	High absorption Limited retention	Bone, rapidly replicating cells
Plutonium-238, 239	High absorption Limited retention	Minimal, usually insoluble	Limited absorption. May form nodules	Lung, bone, and liver
Plutonium-238, 239 High-fired oxides	High absorption Limited retention	Minimal, usually insoluble	Limited absorption May form nodules	Local effects from retention in lung
Polonium-210	Moderate absorption Moderate retention	Minimal	Moderate absorption	Spleen and kidney
Radium-226	Unknown	30 % absorption 95 % fecal excretion	Unknown	Skeletal deposition Marrow suppression Sarcoma
Strontium-90	Limited retention	Moderate absorption	Unknown	Bone—follows calcium
Tritium or hydrogen-3 Tritiated water - HTO	HT—minimal HTO—complete	HT—minimal HTO—complete	HTO—complete	Panmyelo-cytopenia
Uranium-238-235 fluorides UO ₃ , sulfates, carbonates	High absorption High retention	High absorption	High absorption. Skin irritant	Renal Urinary excretion
Uranium-238-235, some oxides, nitrates	Moderate absorption High retention	Moderate absorption	Unknown	Nephro-toxic Urinary excretion
Uranium-238-235, high oxides, hydrides, carbides, salvage ash	Minimal absorption Retention based on particle size	Minimal absorption, high excretion	Unknown	Nephro-toxic Urinary excretion
Uranium-228, depleted uranium metal	Retention based on particle size	Minimal absorption High excretion	Forms pseudo-cysts with urinary excretion Limited absorption	Nephro-toxic Deposits in bone, kidney, and brain

2.4.6 Physical Effects of Nuclear Explosion

Three main types of physical effects are associated with a nuclear explosion, blast and shock, thermal radiation, and nuclear radiation; and each has the potential to cause death and injury to an exposed persons.

Blast injuries may be direct or indirect. Direct blast injuries are caused by the high air pressure created by the blast, and indirect blast injuries are caused by flying missiles and body displacements. The most destructive physical forces are pressures and winds, thermal pulse, and secondary fires. Psychological effects include intense acute and chronic stress disorders. Fallout and radiation dispersal devices may cause limited acute effects but can have significant long-term consequences. Table 2–11 shows the exposure levels and symptoms of radiation exposures.

Table 2–11. Radiation doses and effects

Dose	Effect
0.05 Sv to 0.2 Sv (5 rem to 20 rem)	No symptoms.
0.2 Sv to 0.5 Sv (20 rem to 50 rem)	No noticeable symptoms. Red blood cell count decreases temporarily.
0.5 Sv to 1 Sv (50 rem to 100 rem)	Mild radiation sickness with headache and increased risk of infection due to disruption of immunity cells. Temporary male sterility is possible.
1 Sv to 2 Sv (100 rem to 200 rem)	Light radiation poisoning, 10 % fatality after 30 d (LD 10/30). Typical symptoms include mild to moderate nausea, with occasional vomiting. The immune system is depressed, with convalescence extended and increased risk of infection. Temporary male sterility is common.
2 Sv to 3 Sv (200 rem to 300 rem)	Severe radiation poisoning, 35 % fatality after 30 d (LD 35/30). Nausea is common, with risk of vomiting. There is a massive loss of leukocytes, increasing the risk of infection. Permanent female sterility is possible. Convalescence takes 1 mo to several months.
3 Sv to 4 Sv (300 rem to 400 rem)	Severe radiation poisoning, 50 % fatality after 30 d (LD 50/30). Other symptoms are similar to the 2–3 Sv dose, with uncontrollable bleeding in the mouth, under the skin, and in the kidneys.
4 Sv to 6 Sv (400 rem to 600 rem)	Acute radiation poisoning, 60 % fatality after 30 d (LD 60/30). Fatality increases from 60 % at 4.5 Sv to 90 % at 6 Sv. Female sterility is common at this point. Convalescence takes several months to 1 yr. The primary causes of death (in general 2 wk to 12 wk after irradiation) are infections and internal bleeding.
6 Sv to 10 Sv (600 rem to 1000 rem)	Acute radiation poisoning, 100 % fatality after 14 d (LD 100/14). Survival depends on intense medical care. Bone marrow is nearly or completely destroyed, requiring a bone marrow transplantation. Gastric and intestinal tissue are severely damaged. Death is from infection or internal bleeding. Recovery would take several years and probably would never be complete.
10 Sv to 50 Sv (1000 rem to 5000 rem)	Acute radiation poisoning, 100 % fatality after 7 d (LD 100/7). Spontaneous symptoms occur after 5 min to 30 min. After powerful fatigue and immediate nausea, there is a period of several days of comparable well-being, after which cell death occurs in the gastric and intestinal tissue, causing massive diarrhea, intestinal bleeding, and loss of water. Death is preceded by delirium and coma. Death is inevitable; the only treatment that can be offered is pain therapy.
50 Sv to 80 Sv (5000 rem to 8000 rem)	Immediate disorientation and coma in seconds or minutes. Death occurs after a few hours by total collapse of nervous system.
> 80 Sv (>8000 rem)	Immediate death.

3. INTRODUCTION TO CBRN DECONTAMINANTS

The purpose of this section is to provide an overview of decontaminants. Decontaminants are substances used to destroy, physically remove, or reduce CBRN agents to an acceptable level. The three types of decontaminants are physical (removal), chemical (destruction/neutralization), and thermal. Physical decontaminants include water, weathering, Fuller's Earth, and surfactants and are discussed in section 3.1. Chemical decontaminants include oxidizing agents, strong bases, and microemulsions and are discussed in section 3.2. Thermal decontaminants include hot air, which is discussed in section 3.3. Biological decontamination is discussed in section 3.4, and radiological decontamination is discussed in section 3.5.

Additional information about planning and setting up decontamination operations is available in the *Terrorism Handbook for Operational Responders*, which is referenced in appendix A. The Decontamination chapter in the aforementioned handbook includes several appendices, one entitled Decontamination Solutions: Use and Preparation, and another that contains a flow/chart diagram of a complete decontamination corridor. It is important to note that the EPA has developed guidelines for how to handle hazardous runoff resulting from decontamination operations (this guidance letter is provided as appendix B). In addition to the EPA guidance letter, an EPA awareness document alerting first responders about the environmental liability due to mass decontamination runoff has been included in appendix C.

3.1 Physical Decontaminants

Physical decontaminants are substances used to remove CBRN contaminants from surfaces. Weathering, hot air, water, surfactants, and Fuller's Earth are examples of physical decontaminants and are explained in the remainder of this section. It should be noted that other decontaminants are necessary for neutralization of CBRN contaminants.

3.1.1 Water

Water physically removes CBRN contaminants from surfaces. High-pressure water spray can be used to rapidly remove gross contamination and to reduce the level of agents prior to the use of any surfactant or other chemical decontaminant. High-pressure water jetting equipment has long been utilized in the nuclear power industry as a means of surface decontamination. Timely, copious flushing with water physically removes the agent and will produce good results.

Water, with the addition of detergents, is effective for decontaminating surfaces and materials contaminated with CBRN agents. Decontamination by surfactants in water occurs predominantly by the physical removal or dilution of agent. The use of detergents and water for the physical removal of contaminants from skin and equipment will limit the spread of contamination.

Soap and water (especially soap and hot water) has the capability to neutralize agents to some extent by the chemical method of slow hydrolysis. However, hydrolysis is limited due to the typical low solubility and slow rate of diffusion of agents in water. Contaminated surfaces may be wiped or scrubbed with hot, soapy water. If possible, the item may be immersed in soapy

water; however, since soapy water does not detoxify CBRN contaminants, the runoff water must be considered contaminated, and precautions must be undertaken to prevent additional CBRN contamination. The wastewater (from the water runoff) must be collected and treated to detoxify the agents.

High-temperature saturated steam can be employed to remove CBRN contaminants. Saturated steam is also used to remove grease and oil, as well as for sterilizing, disinfecting, degreasing, and degassing. Steam is efficient for cleaning surfaces before painting or other surface treatments and will flush away poisons and chemicals, as well as dissolve resins and tars. It is ideal for de-icing applications as well as for killing algae or mildew.

3.1.2 Fuller's Earth

Fuller's Earth, a nonplastic form of kaolin that contains an aluminum-magnesium silicate, physically removes the CBRN agent from surfaces. The term "Fuller's Earth" is typically applied to any clay that has an adequate purifying and/or decolorizing capacity. The most recognizable use for Fuller's Earth is kitty litter, a general purpose absorbent used for spill cleanups as well as for feline hygiene. Fuller's Earth is used in industry for decolorizing petroleum-based oils, as a filler for rubber, as a substitute for activated charcoal, or as a filtering medium. Fuller's Earth may be used as a CBRN decontaminant if a better method for the decontamination/detoxification of chemical agents is unavailable.

At some point, the contaminated Fuller's Earth will need to be subjected to a detoxification procedure. Caution must be exercised when using Fuller's Earth so as not to inhale the dust or fine particles associated with it, especially if it is contaminated with a CBRN agent. Inhalation of dust or fine particles may also lead to an irritation/inflammation of the respiratory tract. Prolonged skin contact with Fuller's Earth may cause skin irritation.

3.1.3 Weathering

Weathering describes a passive form of decontamination whereby natural sources of heat and UV radiation (sunlight), water (precipitation), and wind combine to decontaminate a vehicle, a piece of equipment, large structures, and large areas of terrain. During the weathering process, decontamination occurs by evaporation of the contaminant (physical removal) or destruction of contaminants by hydrolysis or, less likely, by photolysis. The effectiveness of using weathering as a decontamination technology is very dependent on the persistency of the CA and the natural attenuation of the BA. The persistency of agent is dependent upon the wind speed, atmospheric stability, precipitation, terrain, vegetation, soil, method of dissemination, ambient temperature, the material and surface on which the agent is deposited, and the chemical and physical properties of the agent. Of these factors, wind, ambient temperature, humidity, precipitation, and atmospheric stability are arguably the most important factors affecting agent persistency. High winds rapidly disperse aerosols, vapors, and particulates thereby decreasing their effective coverage over the target. The higher the temperatures, the faster a liquid agent will evaporate. In hot conditions without any wind, a significant vapor hazard can occur and decontamination by weathering will be much less effective. However, the combination of high temperatures and moderate to high winds can be very effective in decontamination operations. Moreover, high

temperatures can greatly reduce the survivability of certain BAs while high winds can accelerate desiccation, further reducing the viability of some BAs.

3.1.4 Surfactants

There are three categories of surfactants currently in use: anionic surfactants, cationic surfactants, and nonionic surfactants. Surfactants do not detoxify the CBRN agent but solubilize it into a solution for subsequent removal and detoxification. Anionic surfactants are generally more powerful in terms of solubilizing CBRN contaminants into an aqueous solution than cationic or nonionic surfactants. Environmental decontamination of the bacteria *Rickettsia burnetti* can be accomplished by washing with soap and water.

3.2 Chemical Decontaminants

Chemical decontaminants are substances used to neutralize CBRN contaminants. Most of the current decontaminants used in the detoxification of CBRN contaminants can be considered reactive chemicals, or chemicals that readily react with another chemical without the need for stirring, heating, or shaking. Often, as in the case of hydrolysis or oxidation of CAs, the reactions occur immediately with the evolution of heat and gases [chlorine (Cl), water vapor, and hydrogen chloride (HCl)]. Reactive chemicals will interact with metallic containers and coated surfaces to corrode the surfaces as well as with animal and vegetative tissues to damage the tissues. Three types of chemical decontaminants are oxidizing agents, strong bases, and microemulsions.

It should be noted that oxidizing chemicals, such as sodium hypochlorite (NaOCl) or common bleach; and strong bases, such as sodium hydroxide (NaOH), are effective decontaminants for both the removal and neutralization of CBRN contaminants.

3.2.1 Oxidizers

Powerful oxidizing agents, such as calcium hypochlorite ($\text{Ca}(\text{OCl})_2$) and NaOCl are used effectively for the detoxification of CBRN contaminants. When $\text{Ca}(\text{OCl})_2$ and NaOCl dissolve in water, the result is a solution that contains hypochlorite ions. The hypochlorite ions generated by an alkaline aqueous solution of $\text{Ca}(\text{OCl})_2$ or NaOCl are effective in the decontamination of most CB contaminants. Relatively low concentrations of hypochlorite (0.5 % solution) can effectively be used for environmental decontamination of *Burcella arbutus* and *Rickettsia burnetti*.

Supertropical Bleach (STB) is a combination of a strong oxidizer ($\text{Ca}(\text{OCl})_2$) and a strong base, calcium oxide (CaO). OCl⁻ is generated by an aqueous solution of $\text{Ca}(\text{OCl})_2$ and the hydroxide ion is formed by the dissolution of CaO (which produces the OH⁻). When dissolved in water, calcium oxide forms calcium hydroxide ($\text{Ca}(\text{OH})_2$). STB is effective in the decontamination/detoxification of HD, G agents, and VX. STB is also effective against most known biological contamination, but, because of its caustic nature, it is not preferred. Hypochlorite ions in high pH solutions (alkaline) are less effective in the decontamination of VX due to reduced solubility of VX.

Hydrogen peroxide (H_2O_2), another strong oxidizing agent, is commercially available in aqueous solution, ranging in concentrations from 3 % to 86 %. While H_2O_2 solution is effective as an

oxidizing agent, its effectiveness increases when dissociated into hydroxyl free radicals (i.e., OH•). For example, non-dissociated H₂O₂ is not fully effective in detoxifying VX because not all chemical bonds contributing to the potency of VX are broken by peroxide alone. For this reason, H₂O₂ is often combined with other reagents to increase its activity and effectiveness; many different formulations containing H₂O₂ have been developed and tested on CBs. In addition, H₂O₂ is frequently combined with ingredients that provide synergistic effects in sterilant formulations. For example, Sandia Foam (H₂O₂ and surfactants) and Decon Green (H₂O₂, carbonates, molybdenum, and surfactant) are foam formulations with H₂O₂ as an active ingredient.

H₂O₂ can be used in a manner similar to other cleansing agents. The H₂O₂ solution is applied to a wipe (e.g., mop, sponge, etc.), spread on a surface, and allowed to stand for a period of time. While some H₂O₂ residue may be left following evaporation, removal of this residue may not be necessary depending on the end use application of the surface. Peroxyacetic acid and similar organic acids, strong oxidizing agents in their own right, can be added specifically to increase the oxidizing capability of the H₂O₂ in such solutions. Solutions containing H₂O₂ may have a limited shelf-life, and H₂O₂ is known to destabilize and decompose into H₂O and O₂ over time. Therefore, it probably more effective to dilute H₂O₂ solutions at the use site rather than to purchase “ready to use” diluted formulas.

3.2.2 Strong Bases

Strong bases, such as CaO, Ca(OH)₂, NaOH, and potassium hydroxide (KOH), produce a high concentration of hydroxide ions upon mixing with water. These compounds, when in solution, enable effective hydrolysis of CAs. Each compound has a different solubility in water and, since NaOH is the most soluble of these compounds, it is most widely used to prepare decontamination solutions; CaO and Ca(OH)₂ are the least soluble.

NaOH is applicable for the detoxification of persistent agents and G agents where the main reaction is alkaline hydrolysis. In the reaction with GB, the hydroxide bond disrupts and breaks the phosphorus-fluorine bond and forms a phosphorus-oxygen bond. The hydroxide ion is not as effective for VX as it is for GB. In VX, the critical bond is the phosphorus-sulfur bond. While the hydroxide ion will break the P - S bond, there is a competing reaction that replaces the ethoxy group with a hydroxyl group, forming a compound called EA2192. This compound is comparable to VX in its toxicity (LD₅₀ for VX is 0.008 mg/kg, LD₅₀ for EA2192 is 0.017 mg/kg). Depending on the conditions, up to 14 % of EA2192 will be produced. In addition, the solubility of VX in a basic solution such as hydroxide is low, which will affect the reaction rate at low (room) temperature. The hydroxide ion can also be used to detoxify mustard, HD. In the reaction with HD, the hydroxide ion replaces the chlorine atom producing hydrochloric acid. The solubility of HD in an aqueous system, such as hydroxide, is low and much of the reaction occurs at the interface between the HD and water. Normally, the reaction rate is much too slow to be a viable detoxification method. Techniques often used to increase the reaction rate include mixing the reaction mass and increasing the temperature to around 100 °C (212 °F).

3.2.3 Microemulsions

Chemical agents are organic compounds that exhibit a limited solubility in water. Many decontaminants, such as $\text{Ca}(\text{OCl})_2$ and NaOH , are highly soluble in water. Because of the limited solubility of CAs in water, the time needed to decontaminate the agent is determined primarily by the solubility of the agent in the mixture of water and decontaminant. Microemulsions are thermodynamically stable mixtures of water, oil, surfactants, and co-surfactants that appear macroscopically as a homogeneous phase. Different water-soluble decontaminants can be dissolved into a microemulsion leading to a chemical system containing very small organic droplets dispersed into water (for an oil in water microemulsion) containing the decontaminant. When a CA encounters a microemulsion system, it is dissolved (partitioned) into the organic phase of the microemulsion. Once dissolved, the agent can react with the water-soluble decontaminant at the surface of the organic portion of the microemulsion. The rate of agent decontamination is related to the size of the microemulsion particles. The smaller the particles in a microemulsion, the faster the decontamination process occurs. This is due to the high surface area of the reaction surface with respect to the amount of CA dissolved, and the short diffusion paths from the center of the microemulsion particle to its surface.

C8 is a microemulsion formulated by the Germans as a multipurpose decontaminant reagent. The C8 emulsion consists, by weight, of 15 % tetrachloroethylene (C_2Cl_4) that serves as the continuous phase, 76 % water, 1 % anionic surfactant, and 8 % $\text{Ca}(\text{OCl})_2$. C8 is effective in the decontamination of VX, G agents, and HD. C8 can penetrate into paint (without damaging the paint) in order to dissolve and react with CAs that may be imbedded inside the paint. When sprayed, C8 forms a thin, continuous film over the surface to allow for sufficient contact time in decontaminating/detoxifying the chemical agents. After decontamination, the C8 can be rinsed off with water. Table 3–1 provides limited health information from the Material Safety Data Sheet (MSDS) for some familiar chemical decontaminants.

Table 3–1. Some chemical and commercial decontaminants

Decontaminant	Notes
Calcium hypochlorite Ca(OCl) ₂	Danger! Strong oxidizer. Contact with other material may cause fire. Corrosive. Causes burns to any area of contact. Harmful if swallowed or inhaled. Water reactive.
Sodium hydroxide solutions (>10 % NaOH)	Poison! Danger! Corrosive. May be fatal if swallowed. Harmful if inhaled. Causes burns to any area of contact. Reacts with water, acids and other materials.
Sodium hydroxide solution (0.8 % to 8 % NaOH)	Potential Health Effects: The health effects from exposure to diluted forms of this chemical are not well documented. They are expected to be less severe than those for concentrated forms.
Sodium hypochlorite Ca(OCl) ₂	Danger! Corrosive. Causes burns to any area of contact. May be fatal if swallowed. Harmful if inhaled.
Sodium hypochlorite solution (bleach)	Danger! Corrosive. Causes burns to any area of contact. May be fatal if swallowed. Harmful if inhaled.
C8 emulsion	German decontaminating agent containing a mixture of 7.5 % to 8.0 % Ca(OCl) ₂ , 15 % perchloroethylene, 1 % emulsifier, and 76.5 % water.
Decontaminating solution-2 (DS-2) [Diethylenetriamine (70 %), 2-methoxyethanol (28 %), NaOH (2 %)]	Decontamination solution-2 (DS-2) is a suspected teratogen (causes birth defects). Both DS-2 and STB can cause burns and respiratory hazards and may damage the nervous system and liver if exposed to them for long durations. When the two agents come in contact with each other, STB may ignite spontaneously.
Super Tropical Bleach (STB)	DS2 and STB are caustic and can damage equipment, pollute the environment, and cause personal injury. Many of them also are flammable.
BX24	When dispersed in water, BX24 forms a colloidal suspension. The product in normal conditions of storage and employment is not dangerous, and the concentration reached during use is not harmful at all for humans or animals.
Chloramine-B	Overexposure: Eye: irritation, redness, pain. Skin: irritation. Inhalation: coughing. Ingestion: stomach burns and pain. Chloramine-B is an antiseptic agents derived from combining chloramine and benzene sulfonamide. Chloramine is one of the most widely used chemical disinfectants in drinking water system.

3.3 Thermal Decontaminants

Thermal decontaminants, including hot air, have been used to physically remove CBRN contaminants from surfaces. The effectiveness of hot air decontamination varies with respect to the physical properties of the CBRN agent being decontaminated and, to a lesser extent, the

contaminated material. For example, CBRN contaminants distributed over a nonporous or nonabsorbent surface are readily removed using heat. However, if the CBRN contaminants are distributed over a porous or absorbent surface, additional heat and time are required to fully remove it. In other words, as the air temperature increases, the decontamination rate increases.

Other factors such as the velocity of the air or the air exchange rates will also influence the thermal decontamination process. For biological agent decontamination, minimum temperatures required for agent kill vary based on the type of biological contaminant. Dry temperatures, as high as 120 °C (248 °F), are required to destroy bacterial spores. The Venezuelan equine encephalitis virus can be environmentally decontaminated using a heat treatment at 80°C (176°F) for 30 min.

3.4 Biological Decontamination

3.4.1 Regulations (EPA and FDA)

Antimicrobial products are divided into nonpublic health products and public health products, intended to control microorganisms in the environment that are infectious to humans.

Antimicrobial products, whether they be hard surface disinfectants or skin care products, are essential in infection control. It is important to understand the label information and regulations governing that information to choose appropriate products to use in a facility.

The Environmental Protection Agency (EPA) is the government agency that regulates pesticides, which not only includes insecticides, but also germicides. The EPA is responsible for the safety and effectiveness of disinfectants used on environmental surfaces. The Food and Drug Administration (FDA) is the government agency responsible for safe and effective products used in the healthcare setting. This includes, but is not limited to, skincare products such as surgical site preparations, surgical scrubs, and healthcare personnel hand wash products.

Public health antimicrobial products include sterilants, disinfectants, sanitizers, and antiseptics and germicides. Sterilants, disinfectants, and sanitizers are regulated by the EPA because they are for nonhuman and nonfood uses. Antiseptics and germicides must be approved and regulated by the FDA because they are used in or on living beings. Products that wish to make a claim of efficacy against biological materials, such as viruses, spores, or bacteria, must be registered with the EPA and/or the FDA. To define each agency's role and the interaction between the agencies, the EPA and FDA have developed a Memorandum of Understanding (MOU). For example, glutaraldehyde and peracids are high-level disinfectant/sterilant products, and, although they are disinfectants, they are regulated by the FDA because both are considered accessories to medical devices.

EPA regulates pesticides under the statutory authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA defines pests as any form of terrestrial or aquatic plant or animal life, virus, bacteria, or other microorganism (except those living in man) and provides the basis for regulation, sale, distribution, manufacturing, labeling, and use of pesticides in the U.S. FIFRA also defines the different categories of use for a decontaminant, which include general disinfectant, hospital disinfectant, fungicide, and sporicide (sterilant).

The registration requirements for antimicrobial pesticides differ somewhat from those of other pesticides. For example, EPA requires special tests to ensure efficacy of public health pesticides when the pests are invisible disease-causing microbes, rather than insects or rodents that may be harboring disease organisms. Similarly, determining human and ecological risks from exposure to antimicrobial pesticides requires different types of measurements and models than those needed for pesticides largely applied to crops and other plants.⁵

Currently, there is no category for efficacy against *Bacillus anthracis*. EPA has approved certain bleach products that contain sodium hypochlorite for emergency use by authorized personnel in anthrax decontamination. Successful decontamination must be confirmed by environmental sampling following bleach application.

3.4.2 Oxidizers

Hydrogen peroxide (H₂O₂), a strong oxidizing agent, is commercially available in aqueous solution, ranging in concentrations from 3 % to 86 %. It is used as a household disinfectant and has been registered by EPA since 1977 as an antimicrobial pesticide (disinfectant) for indoor use on hard surfaces in residences, medical facilities, food establishments, and other commercial and industrial applications. Another “peroxy” compound often used as a supplemental oxidizing agent in mixtures with hydrogen peroxide, is peroxyacetic acid (C₂H₄O₃). Peroxyacetic acid is an organic peroxide that has been registered since 1985 as an antimicrobial pesticide (disinfectant) for indoor use.

Plain household bleach (5 % NaOCl) is used regularly in biological laboratories. However, 5% NaOCl is very caustic and must be used with care.

3.4.3 Emerging Technologies⁶

The development of new technologies that provide safe and effective decontamination methods for CB weapons is essential.⁷ Examples of two emerging technologies are electrostatic decontamination and atmospheric plasma, or cold plasma.

3.4.3.1 Electrostatic Decontamination

For biological decontamination, electrostatic decontamination is a two-step process. The first step is the application of a thin layer of biological decontamination solution on a contaminated surface, followed by exposure to ultraviolet (UV) light, which activates the decontaminant and destroys agent DNA within seconds. The process kills or neutralizes anthrax, *E. coli* and mustard gas, among other dangerous substances, the company says. The process leaves behind a benign residue.

Electrostatic decontamination system (EDS)⁸ is an effective, safe, and logistically efficient decontamination system that is in its fifth generation. The biological aspect of EDS is currently undergoing verification testing within the EPA regulatory processes. According to the

⁵ <http://www.epa.gov/oppad001/>

⁶ Workshop on Decontamination, Cleanup, and Associated Issues for Sites Contaminated With Chemical, Biological, or Radiological Materials

⁷ http://www.tswg.gov/tswg/news/2004TSWGReviewBookHTML/cbrnc_p6.htm

⁸ <http://www.cleanearthtech.com/>

manufacturer, the decontaminant provides a greater than log-6 kill for *B. anthracis* spores within seconds without brushing, scrubbing, mopping, or scraping. The decontaminant also has high material compatibility, i.e., a paper document can be submersed in the decontaminant for 24 h without harming the print. The system can also be employed with or without UV light. UV light increases the kill rate when used with the biological decontaminant. Testing has shown that the system is effective against BAs (e.g., flu, polio), and CAs.

3.4.3.2 Atmospheric Pressure Plasmas^{9,10}

Atmospheric pressure plasmas, or room temperature plasmas, are known as “cold plasmas.” The plasma process produces a sterilization effect using lower concentrations of decontaminant, but with a higher reactivity than possible with normal gases. When the power for generating the atmospheric pressure plasma is removed, the activity disappears, thereby rapidly dissipating the toxicity of the plasma. Cold plasma can destroy deadly microbes lodged on the skin, weapons, medical instruments, or clothing, and research has shown that plasma can rapidly break down complex chemicals found in nerve gas and deadly biological agents like anthrax. Present methods of decontamination and sterilization often require hours and generate damaging heat, whereas cold plasma can sanitize in mere minutes.

LANL has developed the atmospheric pressure plasma jet (APPJ), a nonthermal, high-pressure, all-dry, decontamination system suitable for use on sensitive equipment. The “downstream” APPJ system was used in tests to destroy CB agent surrogates, as well as actual CAs. Active chemical species produced inside the APPJ are rapidly blown out of the source and impinge a target surface 2 mm to 10 mm away. A helium/oxygen (He/O) feed gas, which produces a mix of atomic oxygen, metastable molecular oxygen, and small amounts of ozone [(e.g., O₂^{*}, He^{*}) and radicals (e.g. O, OH)], is most often used. The dry-heat treatment blows hot air, or some other gas, onto the biological agent. Results indicate a 7-log kill (i.e., a factor of 10 million removal or decrease of the contaminant) of *Bacillus globigii* spores in 30 s with an APPJ effluent temperature of 175 °C (°F), ten times faster than dry heat at the same temperature. The reactive effluents are also effective neutralizers of surrogates for anthrax spores, mustard blister agent, and VX.¹¹ Because the by-product metastable oxygen lasts less than 0.1 s before returning to ordinary oxygen, the APPJ can be considered an environmentally benign process.¹²

3.5 Radiological/Nuclear Decontamination

Radiation is a result of changing atomic structure, the basic building blocks of all things, so radiation can never be totally eliminated. The best decontamination method, therefore, is to remove as much radioactive material as possible, as quickly as possible, to prevent its spread to other areas and to prevent its uptake into the body. Once contaminated, it is important to stay in the area, alert others in the area of the problem, and request assistance.

⁹ http://www.marklandtech.com/technology_portfolio/gasplasma5.html

¹⁰ http://www.asiplasma.com/pages/asi_decontamination.htm

¹¹ <http://flux.aps.org/meetings/YR98/BAPSDPP98/abs/S1900001.html>

¹² <http://www.ehponline.org/docs/1999/107-8/innovations.html>

3.5.1 Response and Cleanup

The 1979 accident at Three Mile Island nuclear power plant changed the approach to responding to nuclear accidents in the U.S. As a result of the accident, the Nuclear Regulatory Commission (NRC) requires all domestic nuclear power plants to develop and test emergency plans. A number of Federal and State agencies have various roles in preparing for and responding to radiological emergencies.¹³

Government agencies and private companies alike are required by law to clean up any hazardous and radioactive substances that could endanger public health and welfare and the environment. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) gives EPA the authority to determine the degree of public hazard posed by contaminated sites. EPA places the most serious problem sites on the Superfund National Priorities List (NPL) for expedited study and cleanup. For sites on the NPL, EPA works closely with the affected states, with input from the public, to develop and monitor site assessment and cleanup schedules.¹⁴

EPA's Radiation Site Cleanup Program uses the best available science to develop risk assessment tools and guidance for cleaning up sites that are contaminated with radioactive materials. Cleanup standards may be expected to start with the EPA recommendation based on one (1) cancer/million/year residual risk level or NRC published criteria.¹⁵

Published reports, guidance documents, and fact sheets address the following topics:¹⁶

- Risk assessment using radionuclide slope factors.
- Stabilization/solidification processes for mixed waste.
- Management options for laboratory generated mixed waste.
- Radiation and mixed waste incineration.
- Electrokinetics remediation.
- Computer groundwater modeling for radioactive and mixed waste contaminated sites.

3.5.2 Decontamination Solutions

The most common decontamination solution (and one of the best) for radiological contamination is mild soap and water. This is an excellent decontamination solution for skin and hair, and works well on most smooth, nonporous surfaces (like lab benches).

Commercial solutions such as "Count off" and "Radiacwash" work better than plain soap and water on metal isotopes and isotopes bound to metals. These commercial solutions may contain EDTA as their active ingredient. A "homemade" EDTA solution may be made by adding 1 % EDTA to a soap and water solution.

Several patent pending, proprietary, water-based solutions have been developed that remove radioactive contamination to acceptable levels by dislocating radioactive ions, enabling them to be removed. These solutions are effective on radioactive halogens (iodine and fluorine),

¹³ <http://www.nsc.org/issues/rad/protect.htm>

¹⁴ <http://www.nsc.org/issues/rad/protect.htm>

¹⁵ http://eed.llnl.gov/ans/2002/vantine/vantine_ans_2002.pdf

¹⁶ <http://www.epa.gov/docs/rpdweb00/cleanup/past.htm>

transition metals (cesium and cobalt), and actinides (uranium, plutonium, and americium). The core technology is called the “mass effect” influence. A radioactive surface is flooded with the solution, which lifts the radioactive material off the surface and suspends it in solution so it can be wiped up and removed as radioactive waste. Ion-specified resins have been developed to remove the radioactive material from the mass effect solution, useful in large decontamination operations.¹⁷

United States Patents 4657596 and 4880559 describe methods of decontaminating nuclear reactors using ceric acid. A method of decontaminating metal surfaces in the cooling system of a nuclear reactor uses an aqueous solution containing about 0.5 % to 3 % of a ceric acid ($C_2H_5O_2$), which can be tetrasulfato-ceric acid ($H_4Ce(SO_4)_4$, commonly called “ceric sulphate”), hexasulfamato ceric acid ($H_2Ce(SO_3NH_2)_6$, commonly called “ceric sulfamate”), hexaperchlorato ceric acid ($H_2Ce(ClO_4)_6$, commonly called “ceric perchlorate”), or mixtures thereof, and about 1 % to 5 % of an inorganic acid that forms a complex with the ceric acid. The cerium III in the aqueous solution can be oxidized to cerium IV to increase the life and effectiveness of the solution. After oxidation, the aqueous solution can be passed through a hydrogen form cation exchange column to remove metal ions. If the aqueous solution contains uranyl or plutonyl ions, these can be recovered by extraction for use in making fuel. Another decontaminating solution of water contains about 0.5 % to 3% of a ceric acid, which can be tetrasulfato-ceric acid, hexasulfamato-ceric acid, hexaperchlorato-ceric acid, or a mixtures thereof, and about 1 % to 5 % of an inorganic acid that forms a complex with the ceric acid.¹⁸

3.5.3 Decontamination Process

The decontamination process for six commonly found radioactive elements is discussed in the following sections. The processes may be applicable to other elements having similar chemical properties.

3.5.3.1 Cesium

The common radioisotope of cesium is cesium-137. Cesium-137 emits beta and gamma radiation, decaying to stable barium-137. Cesium-137, as cesium chloride pellets, is widely used in sealed gamma sources. Cesium chloride is a soluble salt and is known to adsorb from a solution onto glass surfaces. Decontaminating a cesium liquid-contaminated surface is best accomplished by wetting the surface, absorbing the solution with a rag or other absorbent material, and rinsing the area several times with water. Contamination on a porous surface should be preceded by vacuuming. If the contamination persists, a detergent solution and scrub brush can be used to scrub. Metallic surfaces are treated with strong mineral or oxidizing acids. Waxed surfaces can be removed.

3.5.3.2 Cobalt

The common radioisotope of cobalt is cobalt-60, a beta gamma emitter. Metallic cobalt-60 is commonly used in sealed gamma sources. Sealed cobalt sources may leak as a result of

¹⁷ <http://www.nukepills.com/RadDecon/kit-technology.htm>

¹⁸ <http://freepatentsonline.com/4657596.html>

electrolytic action between the cobalt and the container, resulting in a spreading soluble cobalt salt. The cobalt salt is best decontaminated with a detergent or an EDTA solution, followed by a treatment with mineral acids. Particles of cobalt dust adhering to small articles are readily removed by ultrasonic cleaners or by dipping the article in a dilute solution of nitric, hydrochloric, or sulfuric acid. Cobalt-dust contamination that exists over a large area can be removed by vacuuming. Contamination from solutions containing cobalt may be treated with water.

3.5.3.3 Plutonium

Plutonium-239 is an alpha emitter that is present in the AN/UDM-6 calibration source. Plutonium contamination may result from a nuclear weapon accident and be scattered as a metal or as an oxide dust, both of which are insoluble. Since plutonium-239 has a 24000 yr half-life, using aging for decontamination is impractical. Plutonium contamination that covers a small area can be removed by vacuuming. The area should be washed with a detergent solution to remove any remaining contamination, and if contamination still remains, it can be sealed in a protective coating of paint, varnish, or plastic. Plutonium oxide or metal dust spread over a large area, such as a field, should be decontaminated by removing the top layer of soil and disposing as radioactive waste. Personnel should wear respiratory protection when decontaminating or moving the soil.

The current technology used for surface decontamination of residual waste from plutonium-processing operations (glove boxes, tools, pipes, etc.) involves an acid-wash process that generates many liters of mixed-hazardous and requires nearly 8 h of manual labor that results in considerable personnel radiation exposure. APPJ plasma processing provides a method for decontaminating surfaces and recovering residual quantities of actinides (e.g., plutonium, uranium) that form volatile fluorides. In the APPJ-plasma method, a plasma generates a reactive chemical “intermediate” (e.g., fluorine atoms) from an inert feed gas (CF₄ or NF₃). This intermediate reacts with an actinide-contaminated surface to form a volatile gaseous product that is then pumped off the surface, leaving it clean and decontaminated. The off-gas is sent through a filtration system that traps and recovers any residual product. It has not been determined whether the APPJ technology can decontaminate plutonium and uranium from metal surfaces in a *dry, safe* manner.¹⁹

3.5.3.4 Strontium

Strontium-90 is a beta emitter, and the daughter particle of strontium-90 is yttrium-90, also a beta emitter. Strontium-90-yttrium-90 is commonly used in sealed beta sources such as the M6 source, generally present as chloride or carbonate. The chloride is hygroscopic and is best decontaminated by vacuuming, followed consecutively by a water treatment, then a complexing agent solution, and then a mineral acid. Contamination resulting from a dilution containing strontium should be decontaminated by absorbing the solution and washing the area with a detergent solution. If strontium contamination persists, the top layer of the surface should be removed by abrasives or other removal procedures and a sealing coat should be placed over the surface.

¹⁹ http://www.lanl.gov/orgs/p/rh03_rosocha.shtml

3.5.3.5 Tritium

Tritium, the radioisotope of hydrogen, is a weak beta emitter. If tritium is released to an area as a gas, the area should be flushed with air. Objects exposed to tritium for a length of time may absorb the gas and should be disposed. Prior to disposing, they may be degassed under a vacuum by flushing with helium or hydrogen. There is no practical way of removing tritium oxide (T₂O) from water because of its similarity to natural water. Since inhalation of tritium can present an internal hazard, personnel entering an area containing tritium gas should wear an appropriate self-contained breathing apparatus.

3.5.3.6 Uranium

Uranium contamination would likely occur as a result of a nuclear weapon accident in which the fissionable uranium would be spread as a metal or oxide dust. The common isotopes of uranium contamination are uranium-235 and uranium-238, which are insoluble. They are best removed from a contaminated surface by brushing or vacuuming, followed by a treatment with mineral acids or oxidizing acids, and then sealed. Large-area uranium contamination is best decontaminated by removing the top layer of the surface or by sealing the area.

4. OVERVIEW OF CBRN DECONTAMINATION

Decontamination is the process of removing or neutralizing a surface hazard resulting from a CBRN attack. The purpose of this section is to provide an overview of decontamination. Section 4.1 discusses decontamination processes, section 4.2 provides an overview of decontamination equipment, and section 4.3 discusses decontamination capabilities of the equipment.

4.1 Decontamination Process

A decontamination process is the method employed to destroy, reduce, or remove a contaminant to an acceptable level. The three decontamination processes used to decontaminate CBRN agents include physical, chemical, and thermal.

4.1.1 Physical Process

Physical processes remove CBRN contaminants from surfaces but do not detoxify the contaminant. Simple inert sorbents, solvent washes, high-pressure systems, and thermal techniques are examples of physical processes for removing surface contaminants and are explained in the remainder of this section.

4.1.1.1 Simple Inert Sorbent

Simple inert sorbents are materials that physically remove liquid chemicals from surfaces (e.g., skin). Generally, synthetic sorbents adsorb liquids, and natural sorbents absorb them. The state of the liquid chemical after sorption depends on the type of sorbent material used.

When decontaminating with simple inert sorbent materials such as soil, diatomaceous earth, activated charcoal, or some commercially available sorbents, the sorbed liquid remains active in the sorbent material, making the sorbent material toxic. One commonly fielded sorbent-based system uses a type of natural clay, i.e., Fuller's Earth (sec. 3.1.2), in a mitt or package to absorb the agent. The liquid is absorbed by the Fuller's Earth then wiped or blown off the surface, removing the contamination. Since the absorbed liquid is still toxic, the Fuller's Earth remains contaminated and must be detoxified. An example of decontamination equipment utilizing simple inert sorbents is the M100 Sorbent Decontamination System and a Sorbent Decontamination Mat (fig. 4-1), both manufactured for the Department of Defense by Guild Associates, Inc.



Figure 4-1. M100 Sorbent Decontamination System, Guild Associates, Inc.

4.1.1.2 Solvent Wash

A solvent wash is a physical process that uses a non-reactive solvent to remove CBRN contaminants. Contaminants are removed from surfaces by washing the molecules away with water, alcohol, Freon, diesel fuel, etc. Although the contaminate is diluted by the solvent wash, it is not detoxified. Residue may be left behind in cracks, pits, joints, or other small crevices.

Solvents are often applied in an open environment using pressurized sprayers such as a Hudson[®] sprayer, a power washer, or an aerosol sprayer. The runoff from the solvent decontamination must be collected in order to minimize the contaminated area. Solvent wash technology can also be used in an enclosed environment to effectively decontaminate vehicle interiors, portable communications equipment, or electronic devices. In a closed system, solvents can be manipulated by heating them or using them in conjunction with ultrasonic or supersonic sprays to increase their decontamination effectiveness. In addition, after a decontamination cycle, solvents in a closed system can often be recycled for reuse in additional cycles before being discarded and detoxified.

4.1.1.3 High-Pressure System

Decontaminants, such as water and carbon dioxide, when sprayed at high pressures are effectively used to physically remove CAs and BAs from surfaces. Studies have demonstrated that CAs can be removed from surfaces with water pressures equal to or less than 3000 lb per square inch (psi). However, removal of agents from surfaces is highly dependent upon the nature of the surfaces (i.e., surfaces that are flat and smooth can be more readily decontaminated using water spray than surfaces that are curved and porous). Other parameters that influence the effectiveness of water streams for decontamination are pressure, temperature, angle of attack, traverse velocity, space between traverses, standoff distance, flow volume, and jet characteristics. Additives can also be added to the water to improve the water jet characteristics.

Low-pressure delivery systems can also be used for decontamination. Water sprayed onto personnel using showers or other low-pressure delivery systems can be used to decontaminate skin.

One example of decontamination equipment that utilizes high pressure is the K1-10 standard unit (fig. 4-2) manufactured by Applied Surface Technologies. The K1-10 system employs high-pressure CO₂ to physically remove contaminants. Another example is the HDS 1200 EK high-pressure steam jet cleaner unit (fig. 4-3), manufactured by Alfred Kärcher GmbH & Co. The HDS 1200 EK employs mechanical technology to decontaminate materials by disseminating high-pressure cold or hot water, steam, or dry steam.



*Figure 4-2. K1-10,
Applied Surface Technologies*



*Figure 4-3. HDS 1200 EK,
Alfred Kärcher GmbH & Co.*

4.1.2 Chemical Process

A chemical process involves the use of reactive chemicals to neutralize CBRN contaminants. The reactive chemicals are frequently combined with physical removal techniques to leverage the strengths of both the chemical process and the physical process into a single system. Reactive sorbent and catalytic sorbent are examples of chemical processes and are explained in the remainder of this section.

4.1.2.1 Reactive Sorbent

A reactive sorbent adsorbs the CBRN contaminant and then chemically detoxifies it. Reactive sorbents may be prepared with alkaline or caustic solutions, polymeric materials, or microcrystalline metal oxides. Caustic reactive sorbents are prepared by soaking simple sorbents in alkaline solutions, effectively “loading” the matrix with the caustic material. The contaminant is sorbed into the caustic sorbent matrix, reacts with the alkaline medium, and is destroyed. A second approach for reactive sorbents is to prepare a polymeric material with reactive groups attached to the polymeric backbone. In this case, the agent is sorbed by the polymeric matrix, encounters the reactive group, and is neutralized by it. A third approach is to use microcrystalline metal oxides such as aluminum oxide or magnesium oxide. An example of decontamination equipment utilizing reactive sorbents is FAST-ACT™, manufactured by NanoScale Materials, Inc. (fig. 4-4).



Figure 4-4. FAST-ACT™, NanoScale Materials, Inc.

4.1.2.2 Catalytic Sorbent

Catalytic sorbents contain reactive sites that react with and detoxify CA contaminants, similar to reactive sorbents. However, with catalytic sorbents the reactive site is regenerated during detoxification of the agent while, in the case of reactant sorbents, the reactive group is rendered inert after reacting with the agent. These compounds are sorbed into a sorbent polymeric matrix, and polymeric materials containing reactive sites that are covalently bound to the polymer chain. A number of compounds, including enzymes and polyoxometalates, have been synthesized that display hydrolytic and/or oxidative activity against G-type, VX, and mustard agents and catalytically breakdown these CAs. These catalysts have been incorporated directly into microporous membranes by electrostatically producing nanofibers from polymer/solvent spinning solutions using a high voltage electric field.²⁰

4.1.3 Thermal Process

Thermal decontamination uses heat to vaporize chemical contaminants that, in the presence of heat, convert from a liquid to a gas. Water-based chemicals and alcohol-based chemicals both have this quality. Water, when heated, converts to steam, which is an effective way of decontaminating greasy or oily contaminants. Moist steam heat is also used for autoclave sterilization for biocontaminants.

Hot air decontamination (HAD) is a process involving the elevation of temperatures that accelerates the removal of CAs from materials without affecting their integrity. By exposing objects to high temperatures [130 °C (266 °F)] over an extended period of time (5 h), toxic substances can be neutralized. HAD can also be used to decontaminate an area where a spill can be isolated and treated over time, sometimes called “weathering.”

Hot gas decontamination is a rapid, effective, and inexpensive decontamination method for process equipment (explosives or chemicals) that must be decontaminated prior to disposal. The U.S. Army Environmental Center (USAEC) sponsored demonstrations that showed 99.9999 % decontamination of structural components is possible using heated gas to thermally decompose or volatilize explosives or CAs, with destruction of off-gases in a thermal oxidizer. The hot gas

²⁰U.S. Army Natick Soldier Center

process was effective for treatment of items contaminated with explosives, offering an alternative to other decontamination methods for explosives-contaminated materials. Through the use of hot gas decontamination, process equipment is not damaged and can be reused or sold.²¹

Thermal systems are often coupled with other means of decontamination (i.e., physical) to detoxify CBRN agents. The CFL 60 mobile field laundry (fig. 4–5), from Alfred Kärcher GmbH & Co., is an example of decontamination equipment that thermally and physically removes contaminants.

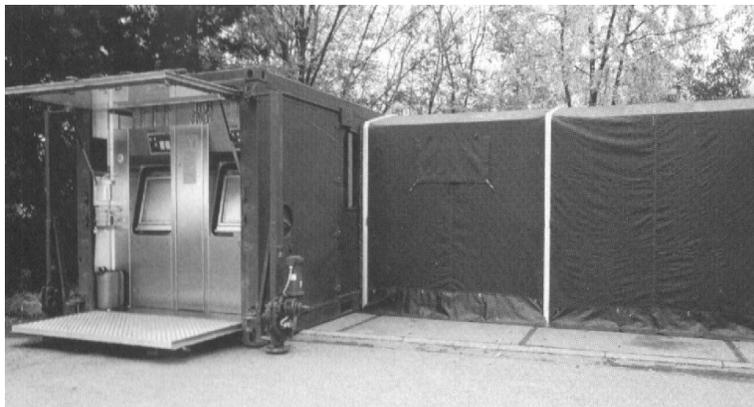


Figure 4–5. CFL 60 mobile field laundry, Alfred Kärcher GmbH & Co.

4.2 Decontamination Equipment

The need for mass decontamination capabilities has become increasingly evident in the past few years. Emergency first responders must have the capability of decontaminating large numbers of individuals in the event of a CBRN terrorist attack. Five categories of decontamination equipment or devices were identified for this guide and include decontamination agents (solutions), delivery systems, mobile decontamination systems, decontamination shelters/showers, and decontamination accessories (including containment systems and kits). Typically, the categories are not autonomous, but include equipment or devices from several groups.

4.2.1 Commercial Decontaminants

For this guide, solutions include decontaminants that are incorporated into a number of carriers, including liquids, fogs, foams, creams, lotions, etc. Solutions can be used to physically remove the contaminant or to chemically neutralize or deactivate the contaminant. Currently, a variety of commercially available decontamination solutions, from Clorox bleach to advanced sorbents, are available. A 10 % solution of household bleach is safe and effective for wiping down counters or floors.

Although solutions are effective decontaminants, a number have been found to be corrosive on some materials and damage equipment, pollute the environment, and cause personal injury.

²¹ <http://aec.army.mil/usaec/technology/cleanup03a.html>

Much work has been done to develop safer decontaminants that are effective for neutralizing CBRN agents, can be used on a number of material surfaces and applications, and allow for almost immediate use of the facility or equipment after an attack. RelyOn™ Disinfectant, from DuPont Personal Protection, is a ready-to-use product for reducing pathogens and controlling cross-contamination (fig. 4–6). Figure 4–7 is a decontamination product for infrastructure decontamination, Decon Formula MDF-500, Modec, Inc.



Figure 4–6. RelyOn™ Disinfectant, DuPont Personal Protection



Figure 4–7. Decon Formula MDF-500, Modec, Inc.

4.2.2 Delivery Systems

Delivery methods for decontaminants may be divided into two main categories, liquid (includes foams and nanoemulsions) and reactive gaseous (includes vapors and aerosols). Liquids or foams are excellent for small surface (i.e., personnel and small equipment) decontamination. Gaseous technologies are typically recommended for vehicle and building interiors due to the difficulty of ensuring coverage and effectiveness over large areas.

4.2.2.1 Liquid and Foam Delivery Systems

Rooms, vehicles, and equipment that are not sensitive to chemical reactions can be effectively decontaminated by washing with a liquid solution or foam applied directly to the contaminated surface. However, they may be impractical for use in an office environment because they can damage paper files and computer systems.

Liquids and foams require significant time to apply as well as to clean up. Following decontamination, the decontaminant must be removed and the area or item dried before resuming normal use. Liquid and foam-based products must be applied correctly over all contact surfaces to ensure a uniform decontamination time. An advantage that foam has over liquids is that foam adheres to vertical and ceiling surfaces, whereas liquids may run or drip, decreasing contact time. An example of a foam delivery system is the Decon 911 Backpack Air Foam System from Allen-Vanguard, Inc. (fig. 4–8). The backpack can also be used as a liquid delivery system.



Figure 4–8. Decon 911 Backpack Air Foam System, Allen-Vanguard, Inc.

Plasmas may be considered a subcategory of liquids. Figure 4–9 shows the Mobile Spray System, from L3 Communications: Applied Technologies, used to distribute the ionized form of the hydroxide free radical for decontaminating personnel, equipment, and infrastructure.



Figure 4–9. Mobile Spray System, L3 Communications: Applied Technologies

4.2.2.2 Reactive Gases Delivery Systems

Entire rooms may be decontaminated by filling them with high concentrations of a chemically reactive gas such as formaldehyde gas, ethylene dioxide, or chlorine dioxide. Gases are advantageous over foams and liquids because gases are able to reach every corner of a room. However, reactive gases can be extremely toxic and can pose a greater safety concern than liquid decontaminants if they escape into the environment. Reactive gases are most often delivered by air ducts and ventilation systems.

Gaseous or vapor technologies are recommended for rooms particularly if a weapons grade aerosolized spore is involved. Emerging technologies, such as hydrogen peroxide vapor (HPV), are displacing earlier fumigant technologies such as formaldehyde and chlorine dioxide, because they offer reduced toxicity, limited corrosiveness, minimal residual effects, and easier application. HPV has been used for over 10 yr in the pharmaceutical industry for room decontamination and has been validated for use in a government facility for anthrax decontamination. A simple, mobile HPV system generates, supplies, controls, and neutralizes the dry vapor to a given area in one stand-alone process. A low concentration of vapor is

compatible with surfaces including electronics and painted surfaces. HVP is one of the safest and equally effective methods for room decontamination.²² Steris Corporation has developed both integrated and portable HVP systems, the VHP® M1000 Biodecontamination System Integrated with an HVAC system and the portable VHP® M100 Biodecontamination System (fig. 4–10).



Figure 4–10. VHP® M1000 Biodecontamination System and VHP® M100 Biodecontamination System, Steris Corporation

4.2.3 Decontamination Shelters

Decontamination showers (shower/dressing rooms with basins and bladders) and shelters are examples of equipment used to support decontamination operations. Decontamination showers and shelters can be portable (rapid deploying) or fixed facilities, and should provide decontamination operations, containment for the hazardous material, and prevention of hazardous materials spreading to the environment.

4.2.3.1 Decontamination Shelters

Depending on the size and configuration of the decontamination shelter, shelters may offer a disrobing area; a showering or decontamination area; a decontamination verification and dressing room; and a conveyor system for immobile patients. They may also provide protection to personnel (victims, technicians, etc.) from any remaining CBRN contamination.

The Isolation Shelter, from Reeves EMS (fig. 4–11) is a positive/negative pressure patient isolation shelter for biological outbreak isolation.

²² <http://www.publications.parliament.uk/pa/cm200203/cmselect/cmsctech/415/415ap17.htm>



Figure 4–11. Isolation Shelter, Reeves EMS

4.2.3.2 Decontamination Showers

Decontamination showers and/or shelters may be simple single units, or elaborate systems with several lanes for ambulatory personnel who can decontaminate themselves or for casualties on stretchers. Portable decontamination shower systems are designed as stand-alone units or as part of decontamination trailers and/or shelters. The person showers while standing on a stool above the contaminated runoff, which is contained by a recovery bladder connected to a catch basin. Decontamination showers come in several configurations including inflatable and articulated frame showers and can be designed for either ambulatory personnel who can decontaminate themselves or for casualties on stretchers. Shower units are available as single, double, or quad units. Figure 4–12 shows the lightweight, portable Decontamination Shower (Model 8800), from Haws Corporation. Figure 4–13 shows a fully contained unit, the First Responder Decon Shower System, from FSI North America.



Figure 4–12. Decontamination Shower, Haws Corporation



Figure 4–13. First Responder Decon Shower System, FSI North America

4.2.4 Decontamination Accessories

Decontamination accessories include containment systems, kits, water heaters, and other support equipment used for decontamination purposes.



Figure 4-16. Sentry Decon Berm™, Basic Concepts, Inc.



Figure 4-17. First Response E.R. Tank, Nor E First Response, Inc.

Items such as sorbent mats or blankets can also be considered containment systems because they are used to isolate and contain contamination from a spill. Figure 4-18 shows the Spilfyter, from NPS Corporation, that is used to remove and control contamination from a contaminated area.



Figure 4-18. Spilfyter, NPS Corporation

4.2.4.3 Support Equipment

Other support equipment may include such diverse items as water heaters, stretchers and gurneys, decontamination tabletops, body wash towels, soap injectors, and mixers. Water heaters can be connected to showers and trailers to provide a more comfortable water spray for patients. Not only is warm water useful in cold climates to prevent hypothermia of the victims, warm water is more effective at decontaminating than cold water, with the efficacy increasing with increased temperature. Figure 4-19 shows the Compact 3000 hot water heater manufactured by First Line Technology. The unique flow-through heating system utilizes a proprietary heat exchange system that provides a continuous supply of heated water with a maximum temperature control. The Hospital Decontamination Tabletop, from RMC Medical (fig. 4-20), is used for the emergency medical treatment and decontamination of a contaminated/injured patient. It is an impermeable, washable, and reusable unit (tub).

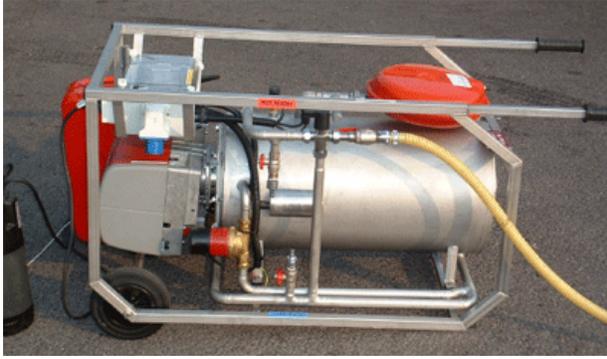


Figure 4-19. Compact 3000, First Line Technology



Figure 4-20. Hospital Decontamination Tabletop, RMC Medical

An example of decontamination equipment used after the decontamination process is the Defoamer System, from Allen-Vanguard, Inc. (fig 4-21). The Defoamer System (patent pending) provides a means of removing foam for cleanup after decontamination operations with foam-based decontaminants.



Figure 4-21. Defoamer System, Allen-Vanguard, Inc.

4.2.5 Mobile Decontamination Systems

Mobile decontamination systems contain all the necessary components and subsystems for personnel, equipment, and/or infrastructure decontamination. They are available in a variety of configurations but are usually large enough to house everything necessary for decontamination purposes. A majority of the mobile decontamination systems are trailer or vehicular based.

Trailer-based decontamination systems are available in many sizes and with numerous options, depending on the customer needs. These mobile decontamination units can be transported to the scene of a major disaster either mounted directly on a truck bed or towed behind a vehicle. A mass-casualty trailer can provide access to needed supplies, including stretchers, masks, power generators, and medical and triage supplies, to name a few. Decontamination trailers may include a sheltered area for changing to address modesty issues, detergent showers, and water rinse showers.

An example of a truck-mounted decontamination system for the first responder community is the customized Mobile Decontamination Unit used by the Boston Fire Department (fig. 4–22). This unit is a 22 ft box truck outfitted to function as a decontamination unit responding to hazardous materials incidents. It has polyethylene walls, floor and ceiling, plumbing, electrical, ventilation equipment, supplied air, and a hot water system. The unit provides six warm water indoor showers and four warm water outdoor showers and a sheltered area for changing to address modesty issues. The water heater used for the field shower is capable of delivering 33000 BTUs. The Boston fire department found that it would take a civilian 6 min to 7 min to move through the decontamination sections and 5 min to 7 min for a firefighter dressed in Level A PPE. The decontamination unit also carries military field shower units and emergency decontamination shelters. A decontamination system designed to be towed behind a vehicle is the SEDAB Decontamination Trailer, from Safety Equipment Development AB (fig. 4–23). It is fully equipped and includes heated water reserve, a generator, hoses for showers, inflatable tents, suits, etc.



Figure 4–22. Mobile Decontamination Unit



Figure 4–23. SEDAB Decontamination Trailer, Safety Equipment Development AB

4.3 Decontamination Capabilities

For general decontamination information the reader can refer to *Responding to a Biological or Chemical Threat: A Practical Guide* (see app. A). For information on methods and techniques utilized during mass casualty decontamination, the reader should refer to *Guidelines for Mass Casualty Decontamination During a Terrorist Chemical Agent* (see app. A).

For this report, there are three decontamination capabilities, personnel decontamination, equipment decontamination, and infrastructure decontamination. The remainder of this section presents each application in more detail.

4.3.1 Personnel Decontamination

Personnel decontamination is the ability to remove and/or destroy CBRN contaminants from human skin and personal equipment (i.e., clothing, PPE, etc.) that may pose a direct threat to human health. The contaminant on the skin must be quickly and efficiently removed without causing damage to the skin. Skin decontaminants can either destroy the contaminant through chemical or biological reactions or physically remove the contaminant from the skin. Devices

for skin decontamination require FDA approval, either as a medical device 510(k) submission or as a New Drug Application (NDA). An example of personnel decontamination equipment, which is exclusively for human use, is the Reactive Skin Decontamination Lotion (RSDL), manufactured by E-Z-EM, Inc. (shown in fig. 4–24).



Figure 4–24. Reactive Skin Decontamination Lotion (RSDL), E-Z-EM, Inc.

In addition to direct skin, or personal, decontamination, personnel decontamination also refers to the ability to decontaminate CBRN agents on personal equipment that is carried by the emergency first responder; in other words, personnel decontamination equipment that is designed for small to large population throughput (i.e., tents and shelters). Figure 4–25 is the 2 Line Decontamination System manufactured by TVI Corporation.



Figure 4–25. 2 Line Decontamination System, TVI Corporation

4.3.2 Equipment Decontamination

Equipment decontamination is the ability to remove and/or destroy CBRN contaminants from the interior and exterior surfaces of both large equipment items (i.e., vehicles) and small equipment items (i.e., computers, communications equipment, etc.). The Macaw Compressed Air Foam (CAF) Backpack, from Intelgard, is an example of decontamination equipment for decontaminating small items (fig. 4–26). Figure 4–27 shows the MPDS from Alfred Kärcher GmbH & Co., which is equipped with a high-pressure spray system that utilizes either chemical or physical means for decontaminating large items.



Figure 4–26. Macaw Compressed Air Foam (CAF) Backpack, Intelgard



Figure 4–27. MPDS, Alfred Kärcher GmbH & Co.

4.3.3 Infrastructure Decontamination

Infrastructure decontamination involves the removal of CBRN contaminants from large-scale items (i.e., buildings, roadways, etc.). Due to their extensive surface area, infrastructures require special consideration during decontamination operations. An example of infrastructure decontamination equipment is the GL-1800D (shown in fig. 4–28) from Global Ground Support. This system uses both physical (removes contaminant) decontamination process and chemical (neutralizes contaminant) decontamination processes. An example of building decontamination equipment is the Clarus Room Bio-Decontamination Service (RBDS) from BIOQUELL, Inc, which uses the R and R2 hydrogen peroxide vapor systems (shown in fig. 4–29).



Figure 4–28. GL-1800D, Global Ground Support



Figure 4–29. Clarus Room Bio-Decontamination Service (RBDS), BIOQUELL, Inc.

5. CBRN DECONTAMINATION EQUIPMENT SELECTION FACTORS

Section 5 provides a discussion of 17 selection factors that are recommended for consideration by the emergency first responder community when selecting and purchasing CBRN decontamination equipment. These selection factors were compiled by a panel of scientists and engineers with multiple years of experience in decontamination, domestic preparedness, and identification of emergency first responder needs. The factors have also been shared with the emergency first responder community in order to obtain their thoughts and comments.

It is anticipated that, as additional input is received from the emergency first responder community, additional factors may be added or existing factors may be modified. These factors were developed so that CBRN decontamination equipment could be compared and contrasted in order to assist with the selection and purchase of the most appropriate equipment. *It is important to note that the evaluation conducted using the 17 selection factors was based upon vendor-supplied data and no independent evaluation of equipment was conducted in the development of this guide.* The vendor-supplied data can be found in its entirety in appendix E. The results of the evaluation of the decontamination equipment against the 17 selection factors are provided in section 6. The remainder of this section defines each of the selection factors. Details on the manner in which the selection factor was used to assess the CBRN decontamination equipment are included within the selection factor definition.

5.1 Cost

Cost is the price of the unit or system and includes the costs associated with purchasing the reagents and consumables to make the unit functional.

5.2 Weight

This selection factor indicates the size of the equipment. The weight of the decontamination apparatus is the total weight in transport mode and in operational status.

5.3 Functional Application

Functional application describes the areas where a piece of equipment would best be employed in the event of a CBRN attack. The three application areas are personnel, equipment, and infrastructure.

Functional Application	
●	Decontaminates three application areas
◐	Decontaminates two application areas
◑	Decontaminates one application area
○	Decontaminates none of the application areas
⊗	Not specified

5.4 Decontamination Process

This selection factor describes the type of process used by the equipment for decontamination operations. The three process areas are chemical (i.e., neutralization of hazard using reactive decontaminate solutions), physical (i.e., hazard removal using sorbents, washing, encapsulation), and thermal (i.e., hazard removal using heat) applications.

Decontamination Process	
●	Capable of thermal, chemical neutralization, and physical removal of contaminants
◐	Capable of chemical neutralization, and physical removal of contaminants
◑	Capable of chemical neutralization but not physical removal of contaminants
◒	Capable of physical removal but not chemical neutralization of contaminants
○	Not capable of thermal, chemical neutralization, and physical removal of contaminants or not applicable
⊗	Not specified

5.5 Chemical Agents Decontaminated

This selection factor describes the number and types of CAs decontaminated by the equipment. Chemical agents, when referred to in this guide, are primarily nerve agents such as GB and VX, and vesicants such as HD. Blister agents considered in this guide include HN, L, and HL mixtures. Blood agents and choking agents are included within the list of TIMs. CAs are discussed in section 2.

CAs Decontaminated	
●	Decontaminates most known CAs
◐	Decontaminates multiple CAs
◑	Decontaminates one CA
◒	Has capacity to decontaminate CAs
○	Decontaminates no CAs or not applicable
⊗	Not specified

5.6 Biological Agents Decontaminated

This selection factor indicates the number and types of BAs decontaminated by the equipment. BAs include threats such as bacterial spores (i.e., *Bacillus anthracis*—anthrax), rickettsiae (i.e., *Rickettsia typhus*—Typhus), toxins (i.e., botulinum toxin), and viruses (i.e., variola major—smallpox). BAs are discussed in section 2.

BAs Decontaminated	
●	Decontaminates all BAs
◐	Decontaminates multiple BAs
◑	Decontaminates one BA
◒	Has capacity to decontaminate BAs
○	Decontaminates no BA or not applicable
⊗	Not specified

5.7 Toxic Industrial Chemicals/Toxic Industrial Materials Decontaminated

This selection factor describes the number and types of TICs/TIMs decontaminated by the equipment. TICs/TIMs are discussed in section 2.

TICs/TIMs Decontaminated	
●	Decontaminates all TICs/TIMs listed
◐	Decontaminates multiple TICs/TIMs
◑	Decontaminates one TIC/TIM
◒	Has capacity to decontaminate TICs/TIMs
○	Decontaminates no TICs/TIMs or not applicable
⊗	Not specified

5.8 Radiological/Nuclear Agents Decontaminated

This selection factor describes the number and types of radiological/nuclear agents decontaminated by the equipment. Radiological agents, when referred to in this guide, refer to gamma, alpha, and beta particles. Radiological particulates can be in solid, dust, or liquid form. Radiological/nuclear agents are discussed in section 2.

Radiological/Nuclear Agents Decontaminated	
●	Decontaminates all radiological/nuclear agents listed (not radionuclide specific)
◐	Decontaminates many radiological/nuclear agents listed (not radionuclide specific)
◑	Decontaminates one type of radiological/nuclear agents (radionuclide specific)
◒	Has capacity to decontaminate radiological/nuclear agents
○	Decontaminates none of the radiological/nuclear agents listed or not applicable
⊗	Not specified

5.9 Capacity/Throughput

This selection factor indicates the number of personnel (skin and personal equipment), large (i.e., vehicles), and small equipment (i.e., communication equipment, computers, etc.), and the areas within an infrastructure that can be decontaminated in a specific time (per hour).

Capacity/Throughput	
●	>500 personnel; 20 large or 100 small pieces of equipment; or 10000 ft ² of area
◐	Between 100 to 499 personnel; 10 to 19 large or 50 to 99 small pieces of equipment; or 5000 ft ² to 9999 ft ² of area
◑	Between 50 to 99 personnel; 5 to 10 large or 25 to 49 small pieces of equipment; or 2500 ft ² to 4999 ft ² of area
◒	Less than 49 personnel; 4 large or 24 small pieces of equipment; or 2500 ft ² of area
○	Not applicable
⊗	Not specified

5.10 Set-up Time

This selection factor indicates the amount of time required to ready the equipment for decontamination operations. The time includes set-up, processing, and tearing down the equipment.

Set-up Time	
●	≤5 min for set-up
◐	>6 min to 10 min for set-up
◑	>11 min to 20 min for set-up
◒	>21 min to 60 min for set-up
○	Not applicable
⊗	Not specified

5.11 Power Requirements

Power requirements are the type of power (ac, dc, etc.) required to operate a piece of equipment.

Power Requirements	
●	Power not required
◐	Battery
◑	Battery and/or ac power and/or vehicle
◒	Other power sources such as diesel engines, electrical generators, etc.
○	Self-contained
⊗	Not specified

5.12 Durability

Durability describes ruggedness of the equipment (i.e., how well a piece of equipment can take rough handling or harsh environments) and any use/reuse capabilities of the equipment (i.e., apparatus can be cleaned and reused with minimal effort, some components need replacing, apparatus cannot be cleaned and reused/sacrificial).

Durability	
●	Able to operate with rough handling in all environments (hardened construction) and can be reused with minimal effort (can be decontaminated)
◐	Able to operate with rough handling in all environments but can only be reused after extensive cleanup and maintenance
◑	Not able to operate with rough handling but can be reused with minimal effort (multiple components need replacement after use and decontamination)
◒	Not able to operate with rough handling and can only be reused after extensive cleanup and maintenance
○	Designed to be disposable or cannot be cleaned
⊗	Not specified

5.13 Operational Environment

This selection factor describes the type of environment required for the decontamination system to be used optimally. For example, some decontamination systems are capable of operating in a field under common outdoor weather conditions and climates, i.e., rain, snow, extreme temperatures, humidity, etc. However, other decontamination systems may require more controlled conditions.

Operational Environment	
●	Operates in all expected environments
◐	Operates in most environments
◑	Operation is restricted to certain environments
○	Operates only at room temperature
⊗	Not specified

5.14 Environmental Considerations

This selection factor refers to the type of environmental issues that arise when using a piece of decontamination apparatus (e.g., hazardous waste generation, waste disposal).

Environmental Considerations	
●	Operation does not impact surrounding environment
◐	System is equipped with retaining structure to prevent environmental impact
◑	Not dangerous for transport (no DOT regulations)
◒	MSDS is available
○	Could potentially impact surrounding environment—system does not provide a means to mitigate impact
⊗	Not specified

5.15 Resources

Resources are the amount of manpower required to use a decontamination system (i.e., mixing, applying, and rinsing), supplies that the decontamination apparatus uses during operation and storage (i.e., batteries, filters, sensors, compressed gases), and any additional equipment required to operate the primary unit.

Resources	
●	One individual required to use the decontamination system; no additional equipment required to operate the primary unit
◐	2 people required to use the decontamination system; 1 or more equipment items (i.e., batteries) required to operate the primary unit
◑	3 people
◒	4 people
○	More than 4 people required to use the decontamination system; more than 2 equipment items (i.e., batteries) required to operate the primary unit
⊗	Not specified

5.16 Warranty

This selection factor indicates the length of time the equipment is warranted by the manufacturer.

Warranty	
●	≥5 yr
◐	≥2 yr to 3 yr
◑	≥1 yr to 2 yr
◒	<1 yr
○	Not applicable
⊗	Not specified

5.17 Skill Level/Training Requirements

This factor refers to the skill level and training required for the operation of a decontamination system. Of specific interest is the amount of time required to instruct the operator to become proficient in the operation of the equipment.

Skill Level/Training Requirements	
●	No special skills or training required
◐	No special skills but training (less than ≤8 h) required
◑	No special skills but training (more than >8 h) required
◒	Special skills required and training required
○	Technician required to operate equipment
⊗	Not specified

6. MARKET SURVEY AND EQUIPMENT EVALUATION

An extensive market survey was conducted to identify commercially available CBRN decontamination equipment. The market survey consisted of a solicitation of manufacturers, the review of previously conducted market surveys, literature searches, and consultation with subject matter experts (SMEs). Section 6.1 provides a summary of the assessment of previous market surveys. Section 6.2 provides the equipment evaluation. In order to provide detailed information on each CBRN decontamination equipment item, 41 data fields, to correspond to the vendor questionnaire, were identified. These data fields were developed by SMEs and approved for distribution by the government. Definitions for the CBRN decontamination equipment data fields are provided in appendix D.

6.1 Market Surveys

This section provides a synopsis of the assessment of previous market surveys, identification of new and updated equipment, and a summary of information obtained through interfacing with the vendors.

6.1.1 Past Market Surveys

A previously conducted market survey, the *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders (NIJ 103-00)* published in October 2001, was reviewed during the development of this guide. This guide provides information on the nature of CBRN agents, an introduction to decontaminants, and some basic technologies used in CBRN decontamination equipment. A listing of this survey is provided in appendix A.

6.1.2 Identification of CBRN Decontamination Equipment

A follow-on market survey was initiated to obtain updated information on previously identified equipment as well as detailed information on equipment developed after October 2001.

A variety of techniques were utilized to identify commercially available decontamination equipment. These techniques included the distribution of Federal Business Opportunities (FedBizOpps) and the Nuclear, Chemical, Biological (NBC) Industry Group Announcements, literature searches, database searches, Internet searches, and technical contacts. A primary source used to identify CBRN decontamination equipment was the Responder Knowledge Database (RKB).

6.1.3 Vendor Contact

Vendors were contacted several times from June 2006 through October 2006. The vendors were provided a government-approved questionnaire to complete and return. Forty of 60 vendors completed and returned the vendor questionnaire. The vendor-supplied data, along with an index identifying each of the CBRN decontamination equipment items, can be found in appendix E through appendix F. The information is also available on line at the RKB website,

<http://www.rkb.mipt.org>. This site has features that permit side-by-side comparisons of equipment, which may aid in the selection.

6.2 Equipment Evaluation

The market survey conducted for decontamination equipment identified 252 different decontamination equipment items. Detailed data on 160 equipment items, those with detailed vendor information, are provided in appendix E of this guide. Limited data for the remaining 92 equipment items are presented in appendix F. The remainder of this section documents the results of evaluating each equipment item with the 17 selection factors (sec. 5). Note: Not all the selection factors were used to evaluate the different equipment categories.

6.2.1 Equipment Usage Categories

In order to display the evaluation results in a meaningful format, the decontamination equipment items were grouped according to type, or intended function of the equipment. Types of equipment include: commercial decontaminants, delivery systems, decontamination shelters (to include showers and shower hardware), decontamination accessories, and mobile decontamination systems. An overview of each grouping was discussed in section 4.0.

In addition to decontamination equipment type, the detection equipment was grouped into three functional capabilities based on the prospective manner of usage by the emergency first responder community. These functional capabilities include personnel decontamination, equipment decontamination, and infrastructure decontamination. The following definitions for the three functional capabilities were extracted from the *Final Report: Wide Area Decon: CB Decontamination Technologies, Equipment and Projects*.

Personnel. Equipment designed to decontaminate either individuals or large populations. It also refers to the ability to decontaminate CBRN agents on personal equipment that is carried by the emergency first responder. It is important to note that only a limited number of products are approved by the FDA for use on the human body.

Equipment. Equipment designed to decontaminate large and small equipment items without affecting the usefulness of the items. Equipment decontamination can include sensitive equipment decontamination (i.e., computers, communications equipment, etc.), exterior equipment decontamination (i.e., vehicles), and interior equipment decontamination.

Infrastructure. Equipment specifically designed to decontaminate large land areas as well as large-scale items such as roadbeds, airstrips, cargo loading docks, and multiple buildings.

It is important to note that many of the equipment items could be grouped into one of several categories, but an attempt was made to group them based on the areas where and how the equipment would best be employed by the emergency first responder community.

6.2.2 Evaluation Results

Only equipment with vendor-supplied information was included in the equipment evaluation. The evaluation results for the decontamination equipment are presented in tabular format for the 160 decontamination equipment items with completed vendor data. Twenty-nine of these items are considered commercial decontaminants, 51 are considered decontamination delivery devices, 55 are considered shelters (including showers), and 25 are considered accessories. The large mobile systems (part of a truck or trailer system) were not evaluated due to the uniqueness of each system but are included in appendix F.

6.2.3 Commercial Decontaminants

For this guide, commercial decontaminants include decontaminants that are incorporated into a number of carriers, including liquids, fogs, foams, creams, powders, etc. Commercial decontaminants can be used to physically remove the contaminant or to chemically neutralize or deactivate the contaminant.

6.2.3.1 Vendor Information (Commercial Decontaminants)

Table 6–1 presents a listing of the vendors that provide commercial decontaminants and the number of items each vendor provides. The commercial decontaminants are grouped according to the number of functional capabilities (i.e., personnel, equipment, and infrastructure) of each item.

Table 6–1. Commercial decontaminants identified for each vendor

Vendor	One Capability	Two Capabilities	Three Capabilities	Total
Allen-Vanguard Inc.	2	2		4
BioTech Systems, Inc.	2			2
CSI ClorDiSys Solutions, Inc.		2		2
DuPont	1	2		3
EFT		2		2
E-Z-EM, Inc.	1			1
Genencor International, Inc.	1			1
Guild Associates, Inc.	1			1
Intelagard		1		1
Karcher Futuretech GmbH		2		2
Modec, Inc.	4			4
NanoScale Materials, Inc.		1		1
National Foam			1	1
Nor E First Response, Inc.			1	1
Radiation Decontamination Solutions, LLC		2		2
US Foam Technologies, Inc.		1		1
Total	12	15	2	29

The market survey identified 20 manufacturers of 36 separate commercial decontaminants. Sixteen of the 20 vendors responded to the vendor questionnaire and supplied information for 29 products. Of these 29 commercial decontaminants, 12 had a single decontamination capability

(personnel, equipment, or infrastructure decontamination); 15 had dual decontamination capabilities (any combination of two capabilities), and two possessed all three decontamination capabilities (personnel, equipment, and infrastructure). **Note:** For commercial decontaminants only, products with personnel decontamination capabilities are approved by FDA for human use.

6.2.3.2 Evaluation of Commercial Decontaminants

The evaluation results for the commercial decontaminants are presented in tabular format for the 29 items with vendor-supplied information. The remaining seven items were not rated but limited information on these products is included in the data sheets in appendix F. The evaluation results for the commercial decontaminants are presented in table 6-2.

Table 6–2. Analysis of commercial decontaminants

ID	Name	Cost	Weight (lb)	Decon Process	Functional Applications	CA Decon	BA Decon	TIMs Decon	Rad Decon	Environmental Conditions	Enviro Considerations	Warranty	Skill/Training
PERSONNEL DECONTAMINATION													
48	DuPont RelyOn™ Antiseptic Hand Products	\$120		●	●	○	●	○	○	⊗	○	⊗	●
52	E-Z-EM Reactive Skin Decontamination Lotion	\$1.6K	5 case	●	●	●	●	○	○	●	●	⊗	●
101	Modec MDF-120			●	●	●	○	○	○	⊗	●	⊗	●
EQUIPMENT DECONTAMINATION													
20	BioTech Systems Biological Decon Solution	\$50	9	○	●	○	●	○	○	⊗	○	○	●
21	BioTech Systems Chemical Decon Solution	\$65	9	○	●	○	○	○	○	⊗	○	○	●
63	Genecor DEFENZ™ 120BG and 130BG			○	●	●	○	●	○	●	●	●	●
65	Guild Associates Bulk Sorbent One Pound Pouch	\$25	1	●	○	●	○	○	○	●	●	○	●
100	Modec Decon Formula MDF-500	\$75		○	●	●	●	○	○	⊗	⊗	⊗	●
102	Modec MDF-200 Formula	\$35	9/gal	○	●	●	●	●	○	⊗	●	⊗	⊗
103	Modec Sandia Decon Formulation DF200			○	●	●	●	○	○	⊗	●	⊗	⊗
INFRASTRUCTURE DECONTAMINATION													
2	Allen-Vanguard DDSF™		23	○	●	●	●	○	○	●	○	○	○
4	Allen-Vanguard SDF		23	○	●	●	●	○	○	●	○	○	○
PERSONNEL AND EQUIPMENT DECONTAMINATION													
120	Radiation Decontamination Solutions Iodowash	\$45		○	●	●	○	○	○	●	●	⊗	●
121	Radiation Decontamination Solutions Emergency Rad Decon Kit	\$300		○	●	●	○	○	○	●	●	⊗	●
EQUIPMENT AND INFRASTRUCTURE DECONTAMINATION													
1	Allen-Vanguard CASCAD™ Foam System		23	○	●	●	●	○	○	●	○	○	○
3	Allen-Vanguard DSF		23	○	●	●	○	○	○	●	●	⊗	○
32	CSI ClorDiSys Solutions Exterm	\$10/tablet		○	●	●	●	○	○	●	●	○	●
33	CSI ClorDiSys Solutions Mimidox	\$75	300	○	●	●	●	○	○	●	●	○	○
46	DuPont RelyOn™ MDC	\$200	< 1 to 11	○	●	○	●	○	○	⊗	●	⊗	●
47	DuPont RelyOn™ Disinfectant Products	\$100		○	●	○	●	○	○	⊗	○	⊗	●
49	EFT Crystal Clean (Crystal Clean Methamphetamine Decontaminant)	\$160	54	●	●	●	●	○	○	●	●	○	○
50	EnviroFoam EasyDECON™ 200		2	○	●	●	●	○	○	●	●	○	○
70	Intelgard RadPro®			○	●	●	○	○	○	●	●	⊗	○
77	Karcher GDS 2000		55	○	●	●	○	○	○	●	●	○	●
78	Karcher RDS 2000		33	○	●	○	○	○	○	●	●	○	●
113	NanoScale Materials FAST-ACT	\$595	25.3	○	●	●	○	○	○	●	○	○	○
154	US Foam ATC/DECON			○	●	●	●	○	○	●	⊗	⊗	⊗
PERSONNEL, EQUIPMENT, AND INFRASTRUCTURE DECONTAMINATION													
114	National Foam All Clear*			○	●	●	●	⊗	⊗	⊗	⊗	⊗	⊗
115	Nor E First Response Decon-Shield**	\$315	15	○	●	○	●	○	○	⊗	○	⊗	●

*Waiting for license

**No longer available

A single-purpose commercial decontaminant used for personnel decontamination is MDF-120, from Modec, Inc., (fig. 6–1). This product is a nontoxic first-aid antiseptic specifically designed as a topical decontaminant for the skin. It uses a propriety formulation to chemically neutralize the contaminant. An example of a commercial decontaminant with dual capabilities is Iodowash, from Radiation Decontamination Solutions, LLC, (fig. 6–2). Iodowash is an ion-specific, water-based solution used for radiological decontamination of both personnel (can be used on intact skin) and equipment.



Figure 6–1. MDF-120, Modec, Inc.



Figure 6–2. Iodowash, Radiation Decontamination Solutions, LLC

6.2.4 Delivery System

Delivery methods for decontaminants are divided into two primary categories: liquid (includes foams and nanoemulsions) and plasmas (which may be considered a subcategory of liquid); and reactive gaseous (includes vapors and aerosols). Liquids or foams are excellent for small surface (i.e., personnel and small equipment) decontamination. Gaseous technologies are typically recommended for vehicle and building interiors due to the difficulty of ensuring coverage and effectiveness over large areas.

6.2.4.1 Vendor Information (Delivery Systems)

Table 6–3 presents a listing of the vendors that provide decontamination delivery systems and the number of items each vendor provides. The delivery systems are grouped according to the number of functional capabilities (i.e., personnel, equipment, and infrastructure) of each item.

Table 6–3. Delivery systems identified for each vendor

Vendor	One Capability	Two Capabilities	Three Capabilities	Total
Allen-Vanguard Inc.		6		6
Applied Surface Technologies	2			2
Atmospheric Glow Technologies	1			1
BioTech Systems, Inc.	1			1
Clean Earth Technologies, LLC		2		2
Cryogenesis		2		2
FSI North America		1		1
Guild Associates, Inc.		1		1
HydroTherm, Inc.			1	1
Intelagard	2	3		5
Karcher Futuretech GmbH	1	7	3	11
L3 Communications: Applied Technologies	2		1	3
Modec, Inc.	5	4		9
US Foam Technologies, Inc.	1	5		6
Total	15	31	5	51

The market survey identified 24 manufacturers of 64 separate decontamination delivery systems. Fourteen of the 24 vendors responded to the vendor questionnaire and supplied information for 51 products. Of these 51 decontamination delivery systems, 15 had a single decontamination capability (personnel, equipment, or infrastructure decontamination); 31 had dual decontamination capabilities (any combination of two capabilities), and five possessed all three decontamination capabilities (personnel, equipment, and infrastructure). Delivery system products with personnel decontamination capabilities pertain to the delivery system only and not the decontaminant that is used with the equipment.

6.2.4.2 Evaluation of Decontamination Delivery Systems (Liquids)

Forty-two delivery systems are used to deliver liquid decontaminants (including three plasma delivery systems). The evaluation results for the liquid delivery systems are presented in table 6–4.

Table 6-4. Analysis of decontamination delivery systems (liquids)

ID	Name	Cost	Weight (lb)	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Conditions	Enviro Considerations	Resources	Warranty	Skill/Training
PERSONNEL DECONTAMINATION																
22	BioTech Systems Portable Decontamination System	\$23.9K	450	☐	☐	☐	☐	○	●	☐	☐	○	○	●	☐	☐
86	Karcher Mediclean		84	☐	☐	☐	☐	☐	●	☐	☐	○	☐	☐	☐	☐
EQUIPMENT DECONTAMINATION																
15	Atmospheric Glow Atmospheric Plasma Decontamination System*		1100	☐	○	☐	○	○	☐	☐	☐	☐	☐	●	☐	☐
93	L3 Communications Mobile Spray System*	\$20K	150	☐	☐	☐	☐	○	●	☐	☐	●	●	●	☐	●
107	Modec FI-25	\$1.35K	55	☐	●	●	☐	☐	●	☐	☐	☐	☐	☐	☐	☐
108	Modec FI-25HP	\$1.35K	55	☐	●	●	☐	☐	●	☐	☐	☐	☐	☐	☐	☐
109	Modec Flex-A-Lite	\$496		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
110	Modec MDF LSA-100 Sprayer	\$35		☐	●	☐	☐	☐	☐	☐	☐	☐	●	☐	☐	☐
111	Modec MicroFogger	\$32		☐	○	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐
155	US Foam RDDS M-700			☐	●	●	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
INFRASTRUCTURE DECONTAMINATION																
95	L3 Communications Mobile Air Purification	\$25K	175	☐	☐	☐	☐	○	●	☐	☐	●	●	●	☐	●
PERSONNEL AND EQUIPMENT (5)																
64	Guild Associates M100 SDS	\$75	1.44	☐	☐	○	○	○	☐	●	○	☐	●	☐	○	●
81	Karcher Decon Sprayer DS-10		21	☐	●	☐	☐	☐	●	●	☐	●	☐	☐	☐	☐
82	Karcher Decon Sprayer DS-10S		12	☐	●	☐	☐	☐	●	●	☐	●	☐	☐	☐	☐
83	Karcher Deconta D2		6.6	☐	●	☐	☐	☐	●	●	☐	●	☐	☐	☐	☐
EQUIPMENT AND INFRASTRUCTURE DECONTAMINATION																
5	Allen-Vanguard Air Foam Dolly System		500	☐	●	☐	☐	☐	●	●	●	●	☐	●	☐	☐
6	Allen-Vanguard Air Trolley System		69.4	☐	●	☐	☐	☐	○	●	●	●	☐	●	☐	☐
7	Allen-Vanguard Backpack Air Foam System		60	☐	●	☐	☐	☐	○	●	●	●	☐	●	☐	☐
8	Allen-Vanguard Decon 911 Backpack Air Foam System		68	☐	☐	☐	☐	☐	○	●	●	☐	☐	●	☐	☐
9	Allen-Vanguard Decon 911 Response Trike		320	☐	☐	☐	☐	☐	●	●	●	☐	☐	●	☐	☐
10	Allen-Vanguard Palletized Containment System		2600	☐	●	☐	☐	☐	☐	○	●	●	☐	☐	☐	☐
62	FSI North America F-MAP BIT Ionization Unit	\$35K		☐	●	●	●	●	●	○	☐	☐	☐	☐	☐	●

Table 6-4. Analysis of decontamination delivery systems (liquids)–Continued

ID	Name	Cost	Weight (lb)	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Conditions	Enviro Considerations	Resources	Warranty	Skill/Training
EQUIPMENT AND INFRASTRUCTURE DECONTAMINATION–CONTINUED																
71	Intelagard Falcon II	\$35K	490	☐	●	●	☐	●	☐	☐	☐	⊗	⊗	⊗	☐	☐
72	Intelagard H1 Hawk	\$28K	800	☐	●	●	☐	●	☐	☐	●	☐	○	⊗	☐	☐
73	Intelagard High Mobility Decontamination System	\$168K		☐	●	●	☐	●	☐	☐	☐	⊗	⊗	⊗	☐	☐
74	Intelagard Macaw Compressed Air Foam (CAF) Systems	\$2.80	65	☐	●	●	☐	●	●	●	☐	☐	○	●	☐	●
75	Intelagard Merlin Compressed Air Foam (CAF) Systems	\$5.30	190	☐	●	●	☐	●	☐	●	●	☐	○	●	☐	☐
79	Karcher AMGDS 1000		132	☐	●	☐	☐	☐	●	☐	⊗	●	⊗	⊗	☐	☐
80	Karcher AMGDS 2000		286	☐	●	☐	☐	☐	●	☐	⊗	●	⊗	⊗	☐	☐
84	Karcher EDADS		1146	☐	●	☐	☐	☐	☐	☐	⊗	●	⊗	⊗	☐	☐
104	Modec 12v Tac-Pac	\$1.15K	11	☐	●	●	☐	☐	⊗	☐	☐	⊗	⊗	⊗	⊗	⊗
105	Modec ATD-5F Portable CAF Device	\$1.45K	37	☐	●	●	☐	☐	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
106	Modec CAF Tac-Pac	\$1.25K	15	☐	●	●	☐	☐	⊗	●	☐	⊗	⊗	⊗	⊗	⊗
112	Modec Tactical Backpack 4000-BP-B	\$210	2	☐	●	●	☐	☐	⊗	●	⊗	⊗	⊗	⊗	⊗	⊗
156	US Foam SIMPLE CAFS			☐	●	●	☐	☐	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
157	US Foam SENTINEL 3		45.2	☐	●	●	☐	☐	⊗	○	●	⊗	⊗	⊗	☐	⊗
158	US Foam SENTINEL 30		650	☐	●	●	☐	☐	⊗	○	●	⊗	⊗	⊗	☐	⊗
159	US Foam SENTINEL 60		1620	☐	●	●	☐	☐	⊗	○	●	⊗	⊗	⊗	☐	⊗
160	US Foam SENTINEL 120		2158	☐	●	●	☐	☐	⊗	○	●	⊗	⊗	⊗	☐	⊗
PERSONNEL, EQUIPMENT, AND INFRASTRUCTURE DECONTAMINATION																
69	HydroTherm TridentOne	\$1.95K	23	☐	○	○	○	○	●	●	☐	●	⊗	●	●	●
85	Karcher Lightweight Multi-Purpose Decontamination System		561	●	●	☐	☐	☐	☐	☐	●	●	⊗	⊗	☐	☐
87	Karcher Multi-Purpose Decontamination System		485	☐	☐	☐	☐	☐	☐	☐	⊗	●	⊗	⊗	☐	☐
88	Karcher SCS 1801 DE		900	●	☐	☐	☐	☐	☐	☐	⊗	●	⊗	⊗	☐	☐
92	L3 Communications BIT BIT™ Spray Gun Decontamination System*	\$20K		☐	☐	☐	☐	☐	●	☐	☐	⊗	●	⊗	☐	●

A single-purpose decontamination delivery system for personnel decontamination is the Mediclean, from Karcher Futuretech GmbH (fig. 6-3). This product works on the principle of DAE (direct application and extraction method). The decontamination solution chemically

neutralizes the contaminant, after which the contaminant is physically removed. The Trident One, manufactured by HydroTherm, Inc. (fig 6–4) is used for personnel, equipment, and infrastructure decontamination. It was developed to assist first responders or civilians in emergency mass decontamination, will easily connect to any 2.5 discharge in seconds.



Figure 6–3. Mobile Mediclean, Karcher Futuretech GmbH



Figure 6–4. Trident One, HydroTherm, Inc.

6.2.4.3 Evaluation of Decontamination Delivery Systems (Gaseous)

The market survey identified seven delivery systems that are used for gaseous decontamination. The evaluation results for the gaseous delivery systems are presented in table 6–5.

Table 6–5. Analysis of decontamination delivery systems (gaseous)

ID	Name	Cost	Weight (lb)	Decon Process	CAs Decon	BAAs Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Conditions	Enviro Considerations	Resources	Warranty	Skill/Training
EQUIPMENT DECONTAMINATION																
13	Applied Surface CO2 Snow Jet	\$1.85K	3	☐	☐	☐	☐	☐	●	●	☐	☐	○	⊗	☐	☐
14	Applied Surface CO2 Snow Jet	\$1.99K	3	☐	☐	☐	☐	☐	●	●	☐	☐	○	⊗	☐	☐
PERSONNEL AND EQUIPMENT DECONTAMINATION																
27	Clean Earth Electrostatic Decontamination System (EDS)	\$7.4K	51.5	☐	☐	☐	☐	○	●	☐	●	☐	●	●	○	☐
28	Clean Earth Electrostatic Decontamination System	\$40.5K	138	☐	☐	☐	☐	○	●	☐	●	☐	●	●	○	☐
EQUIPMENT AND INFRASTRUCTURE DECONTAMINATION																
30	Cryogenesis Booth 125 ASM, 125 ASG	\$17.5K	250	☐	☐	☐	☐	☐	⊗	☐	☐	⊗	●	⊗	○	⊗
31	Cryogenesis Booth 125 MASM	\$12.9K	200	☐	☐	☐	☐	☐	⊗	☐	☐	⊗	●	⊗	○	⊗
89	Karcher Turbosprayer		15.4	☐	☐	☐	☐	☐	●	☐	⊗	○	⊗	⊗	○	☐

The GenV Electrostatic Decontamination System (EDS), from Clean Earth Technologies, LLC (fig. 6–5) is a gaseous decontamination delivery system used for personnel and equipment decontamination. This system decontaminates sensitive equipment, optics, and suited personnel; it can be scaled and built to user specifications.



*Figure 6–5. GenV Electrostatic Decontamination System (EDS),
Clean Earth Technologies, LLC*

6.2.5 Decontamination Shelters

Decontamination shelters are used for a variety of reasons including showers, privacy, command and control, isolation, etc., and are used to support various decontamination operations. Decontamination shelters considered for this market survey are stand-alone units, either as part of a shelter/shower system or the shower unit itself. Whereas decontamination shelter/shower systems are typically housed in a tent-like shelter, shower units consist of the shower hardware and sometimes include a berm for containing the contaminated runoff.

6.2.5.1 Vendor Information (Decontamination Shelters)

Decontamination shelters are grouped according to their primary purpose, either multipurpose shelters or decontamination showers. Shower hardware is also included as a subcategory of decontamination showers. Table 6–6 presents a listing of the vendors that provide decontamination shelters and the number of items each vendor provides.

Table 6–6. Decontamination shelters identified for each vendor

Vendor	Shelter	One Application		Total
		Shower	Shower Hardware	
Andax Environment		1		1
Base-X Inc.		4		4
BioTech Systems, Inc.		4		4
DQE		2	3	5
DuPont			1	1
Fend-all			1	1
First Line Technology, LLC		2		2
FSI North America		2		2
Guild Associates, Inc.	1			1
Karcher Futuretech GmbH			2	2
L3 Communications: Applied Technologies			1	1
MITI Manufacturing Co., Inc.		1	1	2
Nor E First Response, Inc.		1		1
Reeves EMS	4	12		16
RFD Beaufort		4		4
RMC MEDICAL			1	1
Survival, Inc.			1	1
TVI Corporation	1	5		6
Total	6	38	11	55

The market survey identified 24 manufacturers of 77 decontamination shelters. Eighteen of the 24 vendors responded to the vendor questionnaire and supplied information for 55 products. Of these 55 decontamination shelter systems, six are considered multipurpose shelters; 38 are shelters primarily used for decontamination (showering); and eleven are the shower plumbing. Sixty-seven of the 70 showers were used for personnel decontamination only, and three were used for personnel, equipment, and/or infrastructure. Of the seven decontamination shelters, five had a single decontamination capability (personnel, equipment, or infrastructure decontamination), and two had both personnel and equipment decontamination capabilities.

The evaluation results for the decontamination shelter systems are presented in tabular format for the 55 items with vendor supplied information. The remaining 22 items were not rated but are included in the data sheets in appendix F. Decontamination shelters and showers with personnel decontamination capabilities pertain to the shelter/shower systems only and not the decontaminant that is used with the equipment.

6.2.5.2 Evaluation of Multipurpose Shelters

The market survey identified six shelters that can be used for a variety of reasons, including command and control, isolation, containment, etc. Although decontamination is possible in these shelters, that is not their primary function. The evaluation results for multipurpose shelters are presented in table 6–7.

Table 6–7. Analysis of multipurpose shelters

ID	Name	Cost	Weight (kg)	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Environmental Conditions	Enviro Considerations	Warranty	Skill/Training
PERSONNEL DECONTAMINATION															
122	Reeves EMS Isolation Shelter			○	◐	◑	◑	◑	◑	◑	⊗	⊗	◐	◑	●
123	Reeves EMS J Series Tactical Soft Shelter		1600	○	◐	◑	◑	◑	◑	⊗	⊗	●	◐	◑	●
124	Reeves EMS M Series Shelter System			○	◐	◑	◑	◑	◑	⊗	⊗	●	◐	◑	●
125	Reeves EMS XB Series Shelter System			○	◐	◑	◑	◑	◑	⊗	⊗	●	◐	◑	●
151	TVI Consequence Response Decontamination System	\$60.9 K	2260	◐	◐	◑	◑	◑	●	◐	◑	⊗	◐	◑	◑
PERSONNEL AND EQUIPMENT DECONTAMINATION															
66	Guild Associates Chemical Protective Barrier	\$6K-\$10K	120	◐	◐	◑	◑	◑	◑	●	●	○	◐	◑	⊗

Figure 6–6 is an example of a multipurpose system, the Chemical Protective Barrier (Chem-Barrier), from Guild Associates, Inc. This system was developed to contain CA during transport of contaminated personnel and small equipment that are placed inside the Chem-Barrier.



Figure 6–6. Chemical Protective Barrier (Chem-Barrier), Guild Associates, Inc.

6.2.5.3 Evaluation of Decontamination Shower Systems

The market survey identified 38 shower systems, or showers housed within a shelter. For this report, a shower system is a self-contained shelter that is primarily used to decontaminate both ambulatory and nonambulatory personnel. Thirty-five of the shower systems are used for personnel decontamination, and three of the decontamination showers are used for

decontamination of personnel, equipment, and infrastructure. The evaluation results for the decontamination shower systems are presented in table 6–8.

Table 6–8. Analysis of decontamination shower systems

ID	Name	Cost	Weight (kg)	Functional Applications	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Capacity/Throughput	Set-up Time	Power Requirements	Durability	Enviro Considerations	Resources	Warranty	Skill/Training
12	Andax Environmental De-Con Pac™	\$1.22K	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16	Base-X Decontamination Shelters 7010201CS	\$7.23K	63	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
17	Base-X Decontamination Shelters 7020302CS	\$27.8K	121	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
18	Base-X Decontamination Shelters 7030303CS	\$32.2K	146	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
19	Base-X Hygiene Shower Kits	\$1.7K		●	●	●	●	●	●	⊗	●	⊗	⊗	●	●	●	●
23	BioTech Systems Portable Decontamination System	\$12K	136	●	●	●	●	●	●	●	●	●	●	○	●	●	●
24	BioTech Systems Modesty Shelters (Folding Frame)	\$13.9K	125	●	●	●	●	●	●	●	●	●	●	○	●	●	●
25	BioTech Systems Modesty Shelters (Inflatable)	\$12.9K	45.5	●	●	●	●	●	●	●	●	●	●	○	●	●	●
26	BioTech Systems Modular or Inflatable Decon Habitat	\$106 K	2948	●	●	●	●	●	●	●	●	●	●	○	●	●	●
34	DQE Decon Privacy Corridor System	\$3.25K	29.9	●	●	⊗	⊗	●	●	⊗	●	⊗	⊗	●	⊗	●	⊗
37	DQE Standard Decontamination Shower System	\$2.34K	43.1	●	●	●	●	●	●	⊗	●	⊗	⊗	●	⊗	●	⊗
54	First Line Technology MiniFlex Decon Tent* (P,E,I)	\$9K	74.8	●	●	●	●	●	●	●	●	●	⊗	●	●	●	●
55	First Line Technology MidiFlex Decontamination Tent* (P,E,I)	\$107K	110	●	●	●	●	●	⊗	●	●	●	⊗	●	●	●	●
60	FSI North America DAT Series Decon Showers	\$4K to \$46K		●	●	●	●	●	●	●	●	⊗	●	●	⊗	●	●
61	FSI North America F-SS1RT Safety Tank Showers	\$7.5K-\$16.5		●	●	●	●	●	●	●	○	●	●	●	⊗	●	●
98	MITI Hinge-Mate Decon Shower Tent	\$2.3K	10.9	●	●	●	●	●	●	⊗	●	●	●	●	⊗	●	⊗
116	Nor E MEDecon Shelters* (P,E,I)	\$4.2K-\$15K	57	●	●	●	●	●	●	●	⊗	●	●	●	●	●	●
126	Reeves EMS 2 Lane First Response System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●

Table 6–8. Analysis of decontamination shower systems–Continued

ID	Name	Cost	Weight (kg)	Functional Applications	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Capacity/Throughput	Set-up Time	Power Requirements	Durability	Enviro Considerations	Resources	Warranty	Skill/Training
127	Reeves EMS 2 Lane Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
128	Reeves EMS 2 Lane Tactical Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
129	Reeves EMS 2 or 3 First Response System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
130	Reeves EMS 2 or 3 First Lane Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
131	Reeves EMS 2 or 3 Lane Tactical Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
132	Reeves EMS 3 Lane First Response System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
133	Reeves EMS 3 Lane Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
134	Reeves EMS 3 Lane Tactical Hospital System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
135	Reeves EMS Field Shower System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
136	Reeves EMS Individual Decon System			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
137	Reeves EMS PVC Shower			●	●	●	●	●	●	⊗	●	●	⊗	●	⊗	●	●
138	RFD Beaufort Individual Decon Shower Unit	\$3.5K	23	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
139	RFD Beaufort Lightweight Mass Decon Shower System	\$10K	55	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
140	RFD Beaufort Mass Decon Shower System	\$13K	140	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
141	RFD Beaufort Personal Decontamination Shower Unit	\$7K	36	●	●	●	●	●	●	⊗	●	●	●	●	●	●	●
148	TVI 2 Line Decontamination System	\$29.9K	434	●	●	●	●	●	●	●	●	●	●	●	⊗	●	●
149	TVI 3 Line Decontaminant System	\$33K	476	●	●	●	●	●	●	●	●	●	●	●	⊗	●	●
150	TVI 4 Line Decontamination System	\$46.3K		●	●	●	●	●	●	●	⊗	●	●	●	⊗	●	●
152	TVI High Capacity Decontamination System	\$95.6K		●	●	●	●	●	●	●	●	●	●	●	⊗	●	●
153	TVI Professional Individual Decontamination Systems	\$7.3K	107	●	●	●	●	●	●	●	●	●	●	●	⊗	●	●

Figure 6–7 is a portable pneumatic hazmat shower systems, the DAT Series Decon Shower (DAT3060S), manufactured by FSI North America. It is a massive five-line, fully integrated, mass casualty unit that needs no extra add-ons.



Figure 6–7. DAT Series Decon Shower (DAT3060S), FSI North America

Figure 6–8 shows the MiniFlex Decontamination Tent, from First Line Technology, LLC, an example of a shower system used for the decontamination of personnel, equipment, and infrastructure. It uses physical spray pressure to remove the contaminant and chemical action (if connected to CAF system or solution injector) to detoxify the contaminant. Options, like flow-through water heaters, solution injectors, and compressed air foam (CAF) systems, give the MiniFlex Decon Tent the capability to decontaminate equipment and infrastructure.



Figure 6–8. MiniFlex Decontamination Tent, First Line Technology, LLC

6.2.5.4 Evaluation of Decontamination Shower Hardware

All of the 11 shower hardware, i.e., the plumbing without a tent or shelter, was used for personnel decontamination application. The evaluation results for the 11 decontamination shower hardware items are presented in table 6–9.

Table 6–9. Analysis of decontamination shower hardware

ID	Name	Cost	Wt. (lb)	Decon Process	CAs Decon	BAs Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Considerations	Warranty	Skill/Training
35	DQE Decono Shower	\$375	16	☐	☐	☐	☐	☐	●	⊗	⊗	●	●	⊗
36	DQE MASCAS Decon Shower System	\$3.9K	180	☐	☐	☐	☐	☐	●	⊗	⊗	●	●	⊗
38	DQE Quick Response Shower System	\$1.38K	45	☐	☐	☐	☐	☐	●	⊗	⊗	●	●	⊗
45	DuPont Decon Shower		25	☐	☐	☐	☐	☐	⊗	●	●	●	⊗	⊗
53	Fend-all DeFend Emergency Decontamination Shower	\$516	35	☐	☐	☐	☐	☐	●	●	⊗	●	⊗	⊗
90	Karcher Field Shower		118	☐	☐	☐	☐	☐	●	●	⊗	●	●	●
91	Karcher Showerjet 15		118	☐	☐	☐	☐	☐	●	●	⊗	●	●	●
94	L3 Communications Decontamination Shower	\$30K	400	☐	●	●	●	☐	●	●	●	●	☐	●
96	MITI DeCon Hoop	\$935	14	☐	☐	☐	☐	☐	⊗	⊗	●	●	☐	⊗
142	RMC MEDICAL Decon Shower	\$604	50	☐	●	●	●	●	●	●	●	●	⊗	●
147	Survival Hit and Run Kit 2	\$15K	750	☐	●	●	●	●	●	☐	●	●	●	●

Figure 6–9 is an example of a free-standing decontamination shower that is portable, lightweight, and economical. The unit is automatically erected to 86 in high once connected with water supply.



Figure 6–9. Portable Decontamination Shower, Haws Corporation

6.2.6 Decontamination Accessories

For this guide, decontamination accessories include decontamination equipment used for purposes other than commercial decontaminants, delivery systems, decontamination shelters (including decontamination showers), or mobile decontamination systems. Accessories may

include containment systems, kits, water heaters, or other support equipment used for decontamination purposes.

6.2.6.1 Vendor Information (Decontamination Accessories)

Table 6–10 presents a listing of the vendors that provide an equipment item that is considered an accessory for decontamination purposes and the number of items each vendor provides. The decontamination accessories are grouped according to the number of functional application(s) of each item.

Table 6–10. Decontamination accessories identified for each vendor

Vendor	One Capability	Two Capabilities	Three Capabilities	Total
Allen-Vanguard Inc.	1			1
Clean Earth Technologies, LLC			1	1
DQE	5	1		6
EnviroFoam Technologies	1			1
First Line Technology			4	4
Guild Associates, Inc.	2			2
Intelgard	1			1
Miti Manufacturing Co., Inc.	1		1	2
Nor E First Response, Inc.	2			2
NPS Corporation	1			1
RMC MEDICAL	3			3
Survival, Inc.	1			1
Total	18		6	25

The market survey identified 15 manufacturers of 30 separate decontamination accessories. Twelve of the 15 vendors responded to the vendor questionnaire and supplied information for 25 products. Of these 25 decontamination accessories, 16 had a single decontamination capability (personnel, equipment, or infrastructure decontamination); one had dual decontamination capabilities (any combination of two capabilities), six possessed all three decontamination capabilities (personnel, equipment, and infrastructure), and two were used for purposes other than decontamination. In addition, eight decontamination accessories are kits used for decontamination purposes, nine are primarily used for containment, and eight are used in other supporting capacities. Decontamination accessories with personnel decontamination capabilities pertain to the decontamination accessories only and not the decontaminant that is used with the equipment.

6.2.6.2 Evaluation of Decontamination Kits

Decontamination kits may include escape kits, simulant training kits, self-aid kits, and identification kits, to name a few. The evaluation results for the decontamination kits are presented in table 6–11.

Table 6–11. Decontamination accessory evaluation (kits)

ID	Name	Cost	Weight (lb)	Functional Applications	Decon Process	CA Decon	BA Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Considerations	Resources	Warranty	Skill/Training
PERSONNEL DECONTAMINATION																
40	DQE Decon-in-a-Bag	\$298	12	●	●	●	●	⊗	●	⊗	●	⊗	⊗	⊗	●	⊗
41	DQE Facial Decon Kit	\$175		●	●	●	●	⊗	●	⊗	●	⊗	⊗	⊗	●	⊗
44	DQE K-9 Decon Kit	\$245	12	●	●	●	●	⊗	●	⊗	⊗	⊗	●	⊗	⊗	⊗
76	Intelagard Decontamination Escape Kit	\$500	6	●	●	●	●	●	●	●	●	●	●	⊗	●	●
118	Nor E IDecon (Pre and Post) Personal Care and Identity Kit	\$2.85	2.2	●	●	●	●	●	●	⊗	●	●	●	●	⊗	●
146	Survival Expedient MOPP Exchange System	\$2K	90	●	●	●	●	○	●	●	●	●	●	●	●	●
PERSONNEL, EQUIPMENT, AND INFRASTRUCTURE DECONTAMINATION																
29	Clean Earth Portable Chemical/Radiological Simulant Training Kit	\$500	16.5	●	NA	○	○	○	○	●	●	●	●	●	●	●
OTHER																
51	EnviroFoam Fortifier GO/NO-GO Test Kit	\$165	3.8	○	NA	○	○	○	○	⊗	●	●	●	●	●	●

An example of a kit used for personnel decontamination is the Decontamination Escape Kit, from Intelagard (fig. 6–10). The kit includes a 22 oz spray bottle of EasyDECON™ DF200, a NBC-rated mask, coveralls, gloves and boots, hazard materials bag, and light stick.



Figure 6–10. Decontamination Escape Kit, Intelagard

6.2.6.3 Evaluation of Decontamination Containment Items

The market survey identified nine items that are used for containing decontaminated run-off. For this report, sorbent mats and towels are grouped with pools and berms. The evaluation results for the decontamination kits are presented in table 6–12.

Table 6–12. Decontamination accessory evaluation (containment)

ID	Name	Cost	Weight (lb)	Functional Applications	Decon Process	CA Decon	BA Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Considerations	Resources	Skill/Training
PERSONNEL DECONTAMINATION															
67	Guild Associates Protective Blanket	\$310	48	●	●	●	○	○	○	●	●	○	⊗	⊗	⊗
68	Guild Associates Sorbent Decontamination Mat	\$45	0.33	●	●	●	○	○	○	●	●	○	⊗	⊗	⊗
97	MITI DeCon Pool	\$1.2K	18	●	●	●	●	●	●	⊗	●	⊗	●	⊗	⊗
117	Nor E Decon Now Towel	\$2.85	1 oz	●	●	●	●	●	●	⊗	●	●	⊗	●	●
143	RMC MEDICAL Decon Pool	\$118	11	●	●	●	●	●	●	●	●	○	●	●	●
144	RMC MEDICAL Disposable Decon System	\$189	8	●	●	●	●	●	●	●	●	○	●	●	●
145	RMC MEDICAL Hospital Decontamination Tabletop	\$2.99K	55	●	●	●	●	●	●	●	●	●	●	●	●
INFRASTRUCTURE DECONTAMINATION															
119	NPS Corporation Spilfyter		32	●	●	●	○	●	●	●	●	●	●	⊗	●
PERSONNEL AND EQUIPMENT DECONTAMINATION															
42	DQE Disposable Collection Pool	\$89	4	●	●	●	●	○	●	●	●	⊗	●	⊗	⊗

Containment systems use physical measures to reduce the risk and the impact of decontamination waste water from contaminating or polluting the surrounding area. Figure 6–11 shows the DeCon Pool, manufactured by MITI Manufacturing Co., Inc. The pool is reusable when used with a disposable liner.



Figure 6–11. DeCon Pool, MITI Manufacturing Co., Inc.

6.2.6.4 Evaluation of Decontamination Support Equipment

The market survey identified eight decontamination accessories that are used to support decontamination activities. Support items may include air and water heaters, soap injectors, extension rods and roller systems for showers, and air purification systems. Draft standards for portable water heaters and portable air heaters used at personnel decontamination stations are currently going through balloting at ASTM Committee E54 on Homeland Security Applications.²³ Evaluation results for the decontamination support equipment are presented in table 6–13.

Table 6–13. Decontamination accessory evaluation (support)

ID	Name	Cost	Weight (lb)	Functional Applications	Decon Process	CA Decon	BA Decon	TIMs Decon	Rad Decon	Set-up Time	Power Requirements	Durability	Enviro Considerations	Warranty	Skill/Training
PERSONNEL DECONTAMINATION															
39	DQE Decon Wand	\$65	3	●	●	●	●	●	●	●	●	●	●	●	●
43	DQE Easy Roller Non-Ambulatory Roller System with Pool	\$1.3K		●	●	●	●	●	●	●	●	●	●	●	●
PERSONNEL, EQUIPMENT, AND INFRASTRUCTURE DECONTAMINATION															
56	First Line Technology Midi 3000	\$13K	165	●	●	●	●	●	●	●	●	●	●	●	●
57	First Line Technology Compact 3000	\$11.8K	154	●	●	●	●	●	●	●	●	●	●	●	●
58	First Line Technology Compact 4000	\$13.5K	280	●	●	●	●	●	●	●	●	●	●	●	●
59	First Line Technology Compact 6000	\$15K	324	●	●	●	●	●	●	●	●	●	●	●	●
99	MITI Portable High Pressure Soap Injector		30	●	●	●	●	●	●	●	●	●	●	●	●
OTHER															
11	Allen-Vanguard Defoamer			○	○	○	○	○	○	○	○	○	○	○	○

²³ <http://www.astm.org/cgi-bin/SoftCart.exe/COMMIT/COMMITTEE/E54.htm?E+mystore>

Figure 6–12 shows the Miti 3000, from First Line Technology, a water and air heater for portable decontamination and shower facilities.



Figure 6–12. Miti 3000, from First Line Technology

6.2.7 Mobile Decontamination Systems

Mobile decontamination systems contain all the necessary components and subsystems for personnel, equipment, and/or infrastructure decontamination. They are available in a variety of configurations but are usually large enough to house everything necessary for decontamination purposes. A majority of the mobile decontamination systems are trailer or vehicular based. Table 6–14 presents a listing of the manufacturers along with the functional application(s) of each item.

Table 6–14. Mobile decontamination systems identified for each vendor

Vendor	One Capability	Two Capabilities	Three Capabilities	Total
Allen-Vanguard, Inc.		1		1
Base-X, Inc.		1		1
BioTech Systems, Inc.	7			7
Container Products Corp.	4	1		5
Crest Ultrasonics Corp.	1			1
First Line Technology			1	1
FSI North America	1			1
Global Ground Support	1	2		3
Intelgard		1		1
Karcher Futuretech GmbH	1		9	10
Nor E First Response, Inc.	2			2
Survival, Inc.	1			1
Total	18	6	10	34

The market survey identified 15 manufacturers of 45 mobile decontamination systems in the development of this guide. Twelve of the 15 vendors responded to the vendor questionnaire and supplied information for 34 products. Of these 34 mobile decontamination systems, 18 have a single decontamination capability (personnel, equipment, or infrastructure decontamination); six have dual decontamination capabilities (any combination of two capabilities), and 10 possess all three decontamination capabilities (personnel, equipment, and infrastructure). Mobile

decontamination systems with personnel decontamination capabilities pertain to the mobile decontamination system only and not the decontaminant that is used with the equipment.

Figure 6–13 is an example of a mobile, self-contained, decontamination system, the Portable Decontamination System (Model 924), from BioTech Systems, Inc. It is deployable and operational in 10 min and has an estimated capacity of 2400 casualties/hour.

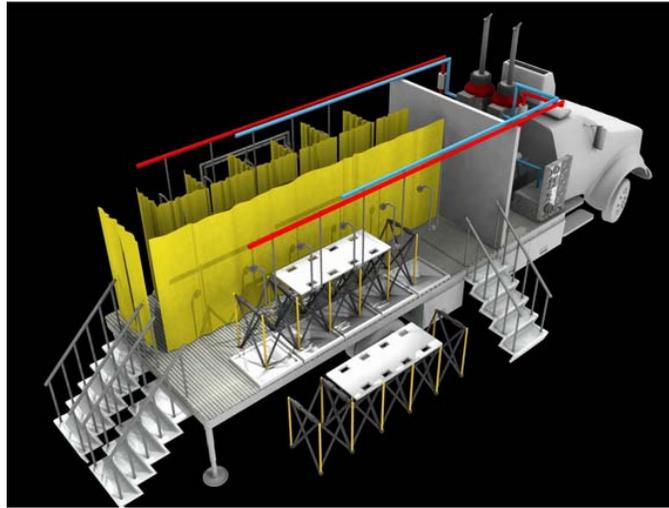


Figure 6–13. Portable Decontamination System (Model 924), BioTech Systems, Inc.

Evaluation tables were not prepared for the mobile decontamination systems but limited information on the identified systems is included in appendix F.

6.2.8 Vendors (No Response)

Sixteen manufacturers did not respond to the market survey. Table 6–15 presents a listing of the 16 manufacturers along with the numbers and types of products these manufacturers represent.

Table 6–15. Decontamination equipment identified for each vendor

Vendor	Commercial Decontaminant	Delivery	Accessory	Shelter	Mobile	Total
BIOQUELL, Inc.		1				1
CryoKinetics		1				1
Engineered Support Systems, Inc.			2			2
Haws Corporation				2		2
Hughes Safety Showers Ltd		2		7	1	10
Life Safety Systems, Inc.		2	1	7	3	13
OWR AG	4	5	1		7	17
Precision Lift, Inc.		1				1
Sabre Technical Services	1					1
SteriFx, Inc.	1					1
Steris Corporation	1	1				2
Technical Solutions Group International (TSGI)		1				1
Wel-Fab, Inc.				1		1
Western Shelter Systems				3		3
Zumro, Inc.				2		2
Total	7	14	4	22	11	58

The 16 manufacturers that did not respond to the market survey represent 58 separate decontamination equipment items. Seven of the 57 products are commercial decontaminants, 14 are delivery systems, four are accessories, 22 are shelter/showers, and 11 are mobile systems. Evaluation tables were not prepared for these items but limited information on the each item is included in appendix F.

APPENDIX A—REFERENCES

APPENDIX A—REFERENCES

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APPENDIX B—EPA LETTER ADDRESSING HAZARDOUS RUNOFF

APPENDIX B—EPA LETTER ADDRESSING HAZARDOUS RUNOFF



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

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U.S. Army Soldier and Biological Chemical Command
5183 Blackhawk Road
Aberdeen Proving Grounds, MD 21010

Dear Mr. Laye:

Thank you for your letter dated April 19, 1999, concerning the impact of contaminated runoff water resulting from mass casualty decontamination. In your letter, you requested the Environmental Protection Agency (EPA) to address two issues: the first responders' liability for spreading contamination while attempting to save lives and the acceptable level of contamination that could enter the Chesapeake Bay without being considered a threat to the ecosystem.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section § 107 (d) Rendering Care or Advice, addresses this issue. Section 107 (d) (1), often known as the "good Samaritan" provision, states: "No person shall be liable under this subchapter for costs or damages as a result of actions taken or omitted in the course of rendering care, assistance, or advice in accordance with the National Contingency Plan (NCP) or at the direction of an On-Scene Coordinator appointed under such plan, with respect to an incident creating a danger to public health or welfare or the environment as a result of any releases of a hazardous substance or the threat thereof." This provision does not preclude liability for costs or damages as a result of negligence. CERCLA §107 (d) (1) would apply to releases of chemical and biological warfare agents due to a terrorists incident, to the extent that there is a release or threatened release of a hazardous substance.

In addition, §107(d)(2) provides that state and local governments are not liable under CERCLA "as a result of actions taken in response to an emergency created by the release or threatened release of a hazardous substance generated by or from a facility owned by another person." Section 107(d)(2) would insulate State and local governments from potential CERCLA liability arising from first responder actions. However, the provision does not apply to costs or damages caused by "gross negligence or intentional misconduct by the State or local government."

EPA will not pursue enforcement actions against state and local responders for the environmental consequences of necessary and appropriate emergency response actions. During a

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hazardous materials incident (including a chemical/biological agent terrorist event), first responders should undertake any necessary emergency actions to save lives and protect the public and themselves. Once any imminent threat to human health and life is addressed, first responders should immediately take all reasonable efforts to contain the contamination and avoid or mitigate environmental consequences and an expanded scope of work for mitigative response actions.

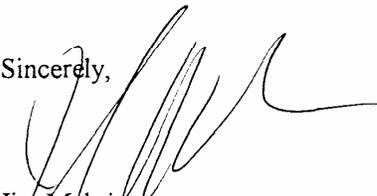
First responders must be aware that EPA cannot prevent a private person from filing suit under CERCLA. Defenses to such an action are described above. In addition, first responders could be subject to actions under other law, including State tort laws. A State's tort law allows individuals and businesses to seek compensation for losses or harm caused by another. The extent of tort liability of a state or local governmental jurisdiction, as well as individual employees or representatives of that jurisdiction, is established by the tort law of each state. The liability of governmental jurisdictions and their employees may be shaped by factors such as negligence, statutory and discretionary immunity, etc. First responders should consult legal counsel in their state to discuss authority, status as an agent of the state, immunities, and indemnification.

We also recommend first responders to involve state and federal officials as soon as possible to reduce potential liability concerns. For example, under CERCLA an on-site emergency response action does not have to comply with federal or state environmental regulations determined to be impracticable by the federal on-scene coordinator (FOSC). In addition, FOSCs have an expanse of federal resources of the National Response System described in the NCP available to support the local incident commanders and will support the state and local responders in determining a solution which best addresses protectiveness of human health and the environment.

With regards to your second question, there is no one "acceptable level" of contaminated run-off which does not pose a threat to the environment. The threat is dependent upon many variables, including contaminant, concentration, point of entry, and size and characteristics of the primary receiver stream. Contaminated run-off should be avoided whenever possible, but should not impede necessary and appropriate actions to protect human life and health. Residual contamination can be addressed immediately after or while human life and health are protected.

Please let me know if you want to further discuss these issues or have any additional questions. You can reach me directly at (202) 260-8600 or call Ken Stroeck, EPA's Counter-Terrorism Program Coordinating Chair, at (202) 260-3434 or Awilda Fuentes at (202) 260-4514.

Sincerely,



Jim Makris
EPA Emergency Coordinator

**APPENDIX C—FIRST RESPONDERS' ENVIRONMENTAL LIABILITY
DUE TO MASS DECONTAMINATION RUNOFF**

APPENDIX C—FIRST RESPONDERS' ENVIRONMENTAL LIABILITY DUE TO MASS DECONTAMINATION RUNOFF



United States
Environmental Protection
Agency

Office of Solid Waste
and Emergency Response
(5104)

EPA 550-F-00-009
July 2000
www.epa.gov/ceppo/



FIRST RESPONDERS' ENVIRONMENTAL LIABILITY DUE TO MASS DECONTAMINATION RUNOFF

The Environmental Protection Agency (EPA) is issuing this alert as part of its ongoing effort to provide information on environmental issues related to biological, chemical, and nuclear terrorist incidents. EPA publishes *Alerts* to increase awareness of possible hazards and environmental concerns. It is important that SERCs, LEPCs, emergency responders and others review this information and take appropriate steps to minimize risk.

PROBLEM

On April 19, 1999, the Team Leader of the Chemical Weapons Improved Response Team (CWIRT), U.S. Army Soldier and Biological Chemical Command sent a letter to EPA raising issues concerning first responders' liability during a weapons of mass destruction (WMD) terrorist incident. Specifically, the CWIRT asked about the first responders' liability for spreading contamination while attempting to save lives.

Environmental liability resulting from critical lifesaving actions may seem unlikely, but could be a serious concern for many first responders. The question is: Can emergency responders undertake necessary emergency actions in order to save lives in dire situations without fear of environmental liability even when such emergency actions have unavoidable adverse environmental impacts? This concern is not limited to WMD terrorist incidents, it has broad implications for our National Response System (NRS)

and frequently is discussed in the hazardous materials response community.

THE NERVE AGENT DRILL

The federal government recently sponsored a multi-agency drill based on a simulated nerve-agent attack. The release of the nerve agent resulted in hundreds of simulated casualties who survived the initial terrorist attack. The hazmat team had to rescue and decontaminate these "survivors" before they could receive medical attention. The hazmat team identified the need to collect the water used to decontaminate the victims (deconwater) to avoid a release to the environment. During the drill, these very capable, well-equipped, well-intentioned, professional hazmat teams delayed their initial entry for more than one hour, awaiting the arrival and set-up of pools to collect the deconwater. While the actor-survivors were dying a slow, painful, convulsive death, state and federal officials were debating and insisting that deconwater had to be collected for proper disposal. By the time the rescuers set up the holding pools and entered the site, nearly 90 minutes later, the "survivors"

CHEMICAL SAFETY

ALERT

had expired. The contaminated water was collected but the "victims" died.

GOOD SAMARITAN PROVISIONS

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section § 107 (d) Rendering Care or Advice, addresses this issue. Section 107 (d) (1), often known as the "good Samaritan" provision states: "No person shall be liable under this sub chapter for costs or damages as a result of actions taken or omitted in the course of rendering care, assistance, or advice in accordance with the National Contingency Plan (NCP) or at the direction of an on-scene coordinator appointed under such plan, with respect to an incident creating a danger to public health or welfare or the environment as a result of any releases of a hazardous substance or the threat thereof." This provision does not preclude liability for costs or damages as a result of negligence. Releases of chemical and biological warfare agents due to a terrorist incident are considered hazardous materials incidents and therefore CERCLA §107 (d) (1) could apply, to the extent that there is a release or threatened release of a hazardous substance.

In addition, §107(d)(2) provides that state and local governments are not liable under CERCLA "as a result of actions taken in response to an emergency created by the release or threatened release of a hazardous substance generated by or from a facility owned by another person." Section 107(d)(2) would insulate state and local governments from potential CERCLA liability arising from first responder actions. **However, the provision does not apply to costs or damages caused by "gross negligence or intentional misconduct by the state or local government."**

During a hazardous materials incident (including a chemical/biological agent terrorist event), first responders should undertake any necessary emergency actions to save lives and protect the public and themselves. **Once any imminent threats to human health and life are addressed, first responders should immediately take all reasonable efforts to contain the contamination and avoid or mitigate environmental consequences.** EPA will not pursue enforcement actions against state and local responders for the environmental consequences of necessary and appropriate emergency response actions. First responders would not be protected under CERCLA from intentional contamination such as washing hazardous materials down the storm-sewer during a response action as an alternative to costly and problematic disposal or in order to avoid extra-effort.

OTHER LIABILITY ISSUES AND STATE TORT LAWS

EPA cannot prevent a private person from filing suit under CERCLA. However, first responders can use CERCLA's Good Samaritan provision as defenses to such an action. First responders could also be subject to actions under other laws, including state tort laws. A state's tort law allows individuals and businesses to seek compensation for losses or harm caused by another. The extent of tort liability of a state or local governmental jurisdiction, as well as individual employees or representatives of that jurisdiction, is established by the tort law of each state. The liability of governmental jurisdictions and their employees may be shaped by factors such as negligence, statutory and discretionary immunity, etc. **First responders should consult legal counsel in their state to discuss authority, status as an agent of the state, immunities, and indemnification.**

FEDERAL SUPPORT DURING A WMD INCIDENT

Contaminated runoff should be avoided whenever possible, but should not impede necessary and appropriate actions to protect human life and health. **Once the victims are removed and safe from further harm and the site is secured and stable, the first responders should be doing everything reasonable to prevent further migration of contamination into the environment.**

First responders should involve state and federal officials as soon as possible to reduce potential liability concerns. Under CERCLA, the Federal On-Scene Coordinator (FOSC) can determine which environmental regulations are applicable (or relevant and appropriate) to any removal response and may further determine that any such environmental regulation is impracticable to achieve depending on the exigencies of the situation. If the FOSC determines that it is impracticable to comply with any particular environmental regulation, then the responders (local, state, Federal or responsible party) do not have to comply with that particular environmental regulation. **By involving FOSC, first responders can substantially reduce their potential liability.**

In addition, FOSCs have an expense of resources under the NRS to support state and local responders in determining a solution which best addresses protectiveness of human health and the environment. Under the NRC, the FOSC can provide invaluable assistance in determining clean-up and decontamination needs, health criteria and appropriate clean-up protocols as needed. FOSC support is even more critical in the aftermath of a WMD terrorist attack when critical post-emergency actions such as agent identification, crime scene sampling, crime scene preservation, and long-term risk evaluation are also being

conducted.

PRE-PLANNING IS KEY!

It may not be technically feasible to contain all the runoff resulting from a WMD incident, but emergency responders may be able to reduce its impact to the environment by pre-planning. Responders can maximize local resources by using existing response mechanisms as much as possible. Local Emergency Planning Committees (LEPCs) are a good starting point. LEPCs are established under the Emergency Planning and Community Right-to-Know Act to develop local governments' emergency response and preparedness capabilities through better coordination and planning, especially within the local community. LEPCs include elected officials, police, fire, civil defense, public health professionals, environmental, hospital and transportation officials, who can work together creatively using available resources to minimize the environmental impact of WMD incidents.

For More Information.....

**Contact the Emergency Planning and
Community Right-to-Know Hotline**

**(800) 424-9346 or (703) 412-9810
TDD (800)553-7672**

**Monday -Friday, 9 AM to 6 PM, EASTERN
TIME**

• • • •

**Visit the CEPPPO Home Page on the
World Wide Web at:
<http://www.epa.gov.ceppo/>**

APPENDIX D—DECONTAMINATION EQUIPMENT DATA FIELDS

APPENDIX D—DECONTAMINATION EQUIPMENT DATA FIELDS

Forty-one data fields were used to provide information relating to CBRN decontamination equipment. The 41 data fields are comprised of data fields from the market survey vendor questionnaire requesting specifics about their decontamination equipment. All data fields were developed using input from the emergency responder community.

The data fields are grouped according to the following five parameters and the number of data fields in each parameter:

- General (13 data fields).
- Operational Capabilities (7 data fields).
- Physical Parameters (3 data fields).
- Logistics (12 data fields).
- Special Requirements (6 data fields).

1.0 General

The CBRN decontamination equipment provides the reduction or removal of substances so they are no longer hazards. The overriding principle with any hazardous material is to assume it is dangerous. Decontamination may be required for equipment, vehicles, the environment and personnel.

1.1 Product Information

Product information, including name, model, and/or stock number, is used to identify the CBRN decontamination equipment. The stock and/or model number indicates the number(s) that are used to uniquely identify the equipment. It should include the stock identification or national stock number, if the equipment has one.

1.2 Manufacturer Information

Manufacturer identifies the company that manufactured the suit (to include the name, address, telephone number(s), fax number, and point-of-contact).

1.3 Source

Source indicates where the suit information was obtained. Potential sources include past market surveys, Internet websites, conferences, or commerce business daily announcements.

1.4 Information Last Updated

This data field indicates when the information was last updated by the vendor.

1.5 Equipment Description

This data field provides an overall description of the decontamination equipment and includes specifics on features that make the equipment unique or desirable.

1.6 Decontamination Process

The decontamination process identifies the process utilized by the decontamination apparatus (i.e., thermal, chemical, or physical). The field also indicates whether the process provides contaminant removal or detoxification (e.g., spray pressure, temperature, reaction mechanism).

1.7 Applications (Recommend Uses)

This data field provides the recommended uses for the decontamination apparatus and indicates whether the equipment should be used for personnel, equipment, or infrastructure decontamination.

1.8 Application Notes

This data field includes additional information to supplement the decontamination process, phase, and application field. If the decontamination apparatus is used for personnel decontamination, an indication as to whether the decontamination apparatus is for expedient or thorough decontamination will be indicated (if known). If the decontamination apparatus is identified for personnel expedient decontamination, an indication as to whether it should be used for self/buddy, mass casualty, or hospital decontamination should be indicated (if known).

1.9 Validation Testing Information

Independent validation testing information includes any test data obtained from sources regarding any part of the equipment (e.g., validation testing includes data obtained regarding the decontamination apparatus). Test data should include the testing organization, tests conducted, test date, and point of contact at the testing agency.

1.10 Developmental Testing

Developmental testing includes data generated by the manufacturer regarding the ability of the decontamination apparatus against TICs (e.g., efficacy testing). Test data should include which contaminant was tested, tests conducted, test results, and test dates.

1.11 Unit and Component Cost (MSRP)

Unit and component costs [manufacturer's suggested retail price (MSRP)] include details on the complete system cost, as well as individual components (e.g., accessories) costs.

1.12 References/User(s) of Product

References/user(s) of product identifies organizations (i.e., military use, commercial applications, civil-service instrument, etc.) that are currently using the piece of decontamination apparatus. This information may include the average number of units each client has in operation and the average number of years these units have been in use. **References must be verified with consent from the users before including the contact information.**

1.13 Product Availability

Availability indicates the lead time for acquiring the decontamination equipment after the order has been placed. The data field also includes whether the equipment is in stock or if it is manufactured on demand.

2.0 Operational Capabilities

2.1 Chemical Agents

This data field describes the ability of the decontamination apparatus to decontaminate or neutralize chemical agents (CAs). The most common types of classic CAs are nerve agents (G-series and VX), blister agents [H-series, L, and phosgene oxime (CX)], or choking agents.

2.2 Biological Agents

This data field describes the ability of the decontamination apparatus to decontaminate or kill BAs. BAs decontaminated or killed may include, but not limited to: bacterial spores (anthrax), Gram (+) vegetative cells, Gram (-) vegetative cells, viruses (smallpox), toxins (botulinum toxin), rickettsia (typhus).

2.3 Toxic Industrial Chemicals/Toxic Industrial Materials

This data field describes the ability of the decontamination apparatus to decontaminate or neutralize TICs/TIMs. TICs/TIMs are used in a variety of settings such as manufacturing facilities, maintenance areas, and storage areas and are further characterized by using a high, medium, or low hazard index. Examples of TICs/TIMs are ammonia, carbon monoxide, hydrogen cyanide, phosgene, and mineral acids (i.e., hydrochloric acid, sulfuric acid, nitric acid, etc.).

2.4 Radiological/Nuclear Agents

This data field indicates the type and state (i.e., liquid, dust, or solid) of radiological particulates the equipment will decontaminate or neutralize. Examples of radiological particulates include, but are not limited to, gamma, alpha, and beta particles.

2.5 Decontaminant (Active Solutions)

This data field includes the recommended decontaminant (water, sodium hydroxide, bleach, etc.) used by the decontamination equipment. It also includes the process conditions for physical removal systems.

2.6 Capacity/Throughput

This data field indicates the number of personnel, vehicles, equipment, facilities, terrain, etc., that can be decontaminated per hour (does not include set up time).

2.7 Set-Up/Tear-Down Time

This data field indicates the amount of time required for setting up and tearing down a single decontamination apparatus.

3.0 Physical Parameters

3.1 Size

This data field indicates the external dimensions of the decontamination apparatus and includes height, width, and depth.

3.2 Weight

This data field indicates the total weight of the decontamination equipment in operational status. It also includes the total weight of the support equipment and consumables.

3.3 Power Requirements

This data field indicates the type of power required to operate the equipment and any ancillary components (battery and/or ac electrical power). If battery power is necessary, it includes the type of battery (i.e., standard size, manufacturer specific, rechargeable, etc.) that is required.

4.0 Logistics

4.1 Portability

This data field includes any special transport for support equipment (e.g., electrical generators, pumps) required for operation of the decontamination system.

4.2 Consumables Required

This data field includes supplies that the decontamination equipment uses during operation and storage, and indicates the frequency of use of the consumables. Examples of consumables are: batteries, filters, sensors, compressed gases, etc.

4.3 Maintenance Required

This data field includes the services and parts that are necessary to keep the decontamination equipment at its peak operational readiness. This includes the level of support provided by the manufacturer, as well as any parts and special tools that are needed during preventative maintenance.

4.4 Maintenance Cost

Maintenance cost is the average cost required to maintain the system at its operational readiness. This cost will be based on decontamination equipment usage rates.

4.5 Use/Reuse

Use/reuse indicates the need for any part of the decontamination apparatus to be discarded after use or its ability to be reused. Procedures available to decontaminate and/or dispose of used equipment should be provided.

4.6 Shelf Life

This data field refers to the length of time the equipment can be stored without being serviced or replaced prior to being used. Some materials are more susceptible to long-term storage than others (soft plastics, rubber gaskets, light sources, etc.).

This data field also refers to the length of time and the conditions under which consumables unique for the equipment can be stored (consumables may require special handling after being stored).

4.7 Storage Conditions

This data field indicates the recommended storage conditions, to include temperature, relative humidity, and any factors that may decrease shelf life (e.g., UV, critical temperature).

4.8 Durability

Durability describes ruggedness of the decontamination apparatus, i.e., how well can the equipment withstand rough handling and still operate. Include and define applicable manufacturing standards that may apply.

4.9 Environmental Conditions

This data field indicates the type of environment required for the decontamination equipment to operate optimally. For example, some equipment is designed to operate under common environmental conditions (e.g., rain, snow, fog, etc.). Other equipment may require more climate-controlled conditions (temperature, humidity, etc.).

4.10 Environmental Considerations

This data field refers to the type of environmental issues that arise when using a piece of decontamination equipment (e.g., hazardous waste generation, waste disposal, etc.), and includes procedures and components to mitigate environmental concerns.

4.11 Resources

This data field refers to the types of resources (manpower, transportation, etc.) required to operate a piece of decontamination apparatus, that has not been previously included.

4.12 Warranty

Warranty refers to the length of time a piece of decontamination apparatus would be guaranteed by the manufacturer, including any restrictions by the manufacturer.

5.0 Special Requirements

5.1 Operator Skills Required

This data field refers to the level of education and training required for the individual to operate the decontamination apparatus.

5.2 Operator Training Required

This data field refers to the amount of instruction time the operator needs to become proficient in operating the decontamination apparatus. For example, higher-end equipment may require in-depth training, such as specialized classes for operation, maintenance, and calibration of the equipment.

5.3 Training Available

Training may range from reading a manual or viewing a video to participating in formal courses offered through the manufacturer or an outside training contractor. The courses may or may not result in certification. Please indicate the type of training programs available from the manufacturer.

5.4 Manuals Available

This data field indicates the types of manuals available from the manufacturer (e.g., user manuals, repair manual with illustrated components and parts, training documentation, etc.).

5.5 Support Equipment

This data field includes additional equipment required to operate the primary unit.

5.6 Applicable Regulations

This data field includes any government and/or safety regulations that may apply to the possession, use, storage, or disposal of a piece of decontamination equipment or decontaminant. This data field also includes whether the decontamination equipment and decontaminants require special handling, or are subject to government regulation, when transporting on public highways. Please include applicable Department of Transportation (DOT) restrictions and special handling instructions.

**APPENDIX E—DECONTAMINATION EQUIPMENT INDEX AND DATA
SHEETS (EVALUATED)**

**APPENDIX E—DECONTAMINATION EQUIPMENT INDEX AND DATA SHEETS
(EVALUATED)**

ID#	Name	Model/Stock	Vendor	Page E-#
1	CASCAD™ Foam System	CASCAD	Allen-Vanguard, Inc.	E-1
2	Decontaminant Dispersal Suppressant Foam (DDSF™)	TD-CH-202—135 L/35 U.S. gal	Allen-Vanguard, Inc.	E-3
3	Dispersal Suppressant Foam (DSF™)	TD-CH-203—135 L/35 U.S. gal	Allen-Vanguard, Inc.	E-5
4	Surface Decontaminant Foam (SDF™)	TD-CG-201—135 L/35 U.S. gal	Allen-Vanguard, Inc.	E-7
5	Air Foam Dolly System (AFDS)	Decon only (TD-AC-000)	Allen-Vanguard, Inc.	E-9
6	Air Trolley System	TD-BP-049	Allen-Vanguard, Inc.	E-11
7	Backpack Air Foam System	TD-BP-001	Allen-Vanguard, Inc.	E-13
8	Decon 911 Backpack Air Foam System	TD-DP-00-00-000	Allen-Vanguard, Inc.	E-15
9	Decon 911 Response Trike	TD-GU-00-00-000	Allen-Vanguard, Inc.	E-17
10	Palletized Containment System	TD-PS-000	Allen-Vanguard, Inc.	E-19
11	Defoamer	TD-DF-000	Allen-Vanguard, Inc.	E-21
12	De-Con Pac™	DCP-050-T, DCP-050-3, DCP-050-1, DCP-050-6T	Andax Environmental	E-23
13	CO2 Snow Jet	K1-05/K1-10 Standard Units	Applied Surface Technologies	E-25
14	CO2 Snow Jet	K4-05/K4-10 High Purity Units	Applied Surface Technologies	E-27
15	Atmospheric Plasma Decontamination System	Atmospheric Plasma Decontamination System	Atmospheric Glow Technologies	E-29
16	Decontamination Shelters	7010201CS—Ambulatory	Base-X, Inc.	E-31
17	Decontamination Shelters	7020302CS—Ambulatory; 7020302CSM—Nonambulatory	Base-X, Inc.	E-33
18	Decontamination Shelters	7030303CS—Ambulatory; 7030303CSM—Nonambulatory	Base-X, Inc.	E-35
19	Hygiene Shower Kit	70H001 (2 Stall Hanging Shower); 70H002 (2 Stall Hanging Shower with Hot and Cold Plumbing)	Base-X, Inc.	E-37
20	Biological Decon Solution	PS-2; GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-39
21	Chemical Decon Solution	PS-1; GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-41
22	Portable Decontamination System	Model 111; GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-43
23	Portable Decontamination System	Model 101; GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-45
24	Modesty Shelters (Folding Frame)	GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-47

ID#	Name	Model/Stock	Vendor	Page E-#
25	Modesty Shelters (Inflatable)	GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-49
26	Modular or Inflatable Decon Habitat	Model 1420; GSA Contract #: GS-07F-5795P	BioTech Systems, Inc.	E-51
27	Electrostatic Decontamination System (EDS)	EDS	Clean Earth Technologies, LLC	E-53
28	Electrostatic Decontamination System	GenV EDS	Clean Earth Technologies, LLC	E-55
29	Portable Chemical/Radiological Simulant Training Kit	Standard	Clean Earth Technologies, LLC	E-57
30	Cryogenesis Booth	125 ASM; 125 ASG	Cryogenesis	E-59
31	Cryogenesis Booth	Minnie 125 MASM	Cryogenesis	E-61
32	Exterm	6 g	CSI ClorDiSys Solutions, Inc.	E-63
33	Minidox	Minidox-M	CSI ClorDiSys Solutions, Inc.	E-65
34	Decon Privacy Corridor System	HMK1300A	DQE	E-67
35	Decono Shower	HM2000	DQE	E-69
36	MASCAS Decon Shower System	HMK4101	DQE	E-71
37	Standard Decontamination Shower System	HMK1101S; HMK1101A	DQE	E-73
38	Quick Response Shower System	HMK3101S; HMK3101A	DQE	E-75
39	Decon Wand	HM6006	DQE	E-77
40	Decon-in-a-Bag	HM6000	DQE	E-79
41	Facial Decon Kit	HMK6500	DQE	E-81
42	Disposable Collection Pool	HM1040	DQE	E-83
43	Easy Roller Non-Ambulatory Roller System with Pool	HMK11045S; HMK11045A	DQE	E-85
44	K-9 Decon Kit	HMK 901	DQE	E-87
45	Decon Shower	RS490T (Shower); RS491T (Curtain)	DuPont Personal Protection	E-89
46	DuPont™ RelyOn™ Multi-Purpose Disinfectant Cleaner	RelyOn™ MDC	DuPont Personal Protection	E-91
47	DuPont™ RelyOn™ Disinfectant Products	Disinfectant	DuPont Personal Protection	E-93
48	DuPont™ RelyOn™ Antiseptic Hand Products	Antiseptic	DuPont Personal Protection	E-95
49	EFT Crystal Clean (Crystal Clean Methamphetamine Decontaminant)	Crystal Clean 200-3313	EFT	E-97

ID#	Name	Model/Stock	Vendor	Page E-#
50	EasyDECON™ 200	DF200; EasyDECON 200–5311—Personal Incident Response System (PIDS™); EasyDECON 200–5313—Five Gallon Pail Kit; EasyDECON 200–5315—100 Gallon Drum Kit; EasyDECON 200–5336—500 Gallon Tote Kit	EFT	E–99
51	Fortifier GO/NO-GO Test Kit	EasyDECON 200–9030; EasyDECON 200–9060; Fortifier GO/NO-GO Test Kit	EFT	E–101
52	Reactive Skin Decontamination Lotion	F5402E	E-Z-EM, Inc.	E–103
53	DeFend Emergency Decontamination Shower	32-001187-0000	Fend-all dbudke@bacou-dalloz.com	E–105
54	MiniFlex Decon Tent	PRO510-1001	First Line Technology, LLC	E–107
55	MidiFlex Decontamination Tent	PRO510-1002	First Line Technology, LLC	E–109
56	Midi 3000	DAV02000001	First Line Technology, LLC	E–111
57	Compact 3000	DAV02000003	First Line Technology, LLC	E–113
58	Compact 4000	DAV02000007	First Line Technology, LLC	E–115
59	Compact 6000	DAV02000004	First Line Technology, LLC	E–117
60	DAT Series Decon Shower	DAT1010S, DAT2020S, DAT2525S, DAT2525SMA, DAT2626S, DAT2999S, DAT3030S, DAT3535S, DAT3060S, DAT4070S, DAT4099S	FSI North America	E–119
61	F-SS1RT Safety Tank Shower	F-SS1RT-350; F-SS1RT-M800; F-SS1RT-L1200; F-SS1RT-L2000	FSI North America	E–121
62	F-MAP BIT Ionization Unit	F-MAP3002	FSI North America	E–123
63	DEFENZ™ 120BG and 130BG	120BG and 130BG	Genencor International, Inc.	E–125
64	M100 SDS Sorbent Decontamination System	864–000–0000	Guild Associates, Inc.	E–127
65	Bulk Sorbent One Pound Pouch	864–100–0001	Guild Associates, Inc.	E–129
66	Chemical Protective Barrier	8760–005–0001	Guild Associates, Inc.	E–131
67	Protective Blanket	691–138–0004	Guild Associates, Inc.	E–133
68	Sorbent Decontamination Mat	864–100–0200	Guild Associates, Inc.	E–135
69	TridentOne	T-1	HydroTherm, Inc.	E–137

ID#	Name	Model/Stock	Vendor	Page E-#
70	RadPro®	RadPro® is a trademarked product of Environmental Alternatives, Inc.	Intelagard	E-139
71	Falcon II	Falcon II	Intelagard	E-141
72	H1 Hawk	CAF Skid System	Intelagard	E-143
73	High Mobility Decontamination System	HM-DS	Intelagard	E-145
74	Macaw Compressed Air Foam (CAF) System	Backpack	Intelagard	E-147
75	Merlin Compressed Air Foam (CAF) System	Portable wheeled handcart CAF system	Intelagard	E-149
76	Decontamination Escape Kit	DEK	Intelagard	E-151
77	GDS 2000	GDS 2000	Karcher Futuretech GmbH	E-153
78	RDS 2000	RDS 2000	Karcher Futuretech GmbH	E-155
79	AMGDS 1000	AMGDS 1000	Karcher Futuretech GmbH	E-157
80	AMGDS 2000	AMGDS 2000	Karcher Futuretech GmbH	E-159
81	Decon Sprayer	DS-10	Karcher Futuretech GmbH	E-161
82	Decon Sprayer	DS-10 S	Karcher Futuretech GmbH	E-163
83	Deconta D2	Deconta D2	Karcher Futuretech GmbH	E-165
84	EDADS	EDADS	Karcher Futuretech GmbH	E-167
85	Lightweight Multi-Purpose Decontamination System	LMDS	Karcher Futuretech GmbH	E-169
86	Mediclean	2000 SE	Karcher Futuretech GmbH	E-171
87	Multi-Purpose Decontamination System	MPDS	Karcher Futuretech GmbH	E-173
88	SCS 1801 DE	SCS 1801 DE	Karcher Futuretech GmbH	E-175
89	Turbosprayer	Turbosprayer	Karcher Futuretech GmbH	E-177
90	Field Shower	Field Shower	Karcher Futuretech GmbH	E-179
91	Showerjet 15	Showerjet 15	Karcher Futuretech GmbH	E-181
92	BIT (Binary Ionization Technology) BIT™ Spray Gun Decontamination System	L-3 Communications	L3 Communications: Applied Technologies	E-183
93	Mobile Spray System	MCU-S-1000	L3 Communications: Applied Technologies	E-185

ID#	Name	Model/Stock	Vendor	Page E-#
94	Decontamination Shower	DN-1000	L3 Communications: Applied Technologies	E-187
95	Mobile Air Purification	MAP-3200	L3 Communications: Applied Technologies	E-189
96	DeCon Hoop	DH-40, DH-40H, DH40-4P, DH40-4PH	MITI Manufacturing Co., Inc.	E-191
97	DeCon Pool	DP-6, \$598, DPI-5, DPI-8	MITI Manufacturing Co., Inc.	E-193
98	Hinge-Mate Decon Shower Tent	SSDS-6	MITI Manufacturing Co., Inc.	E-195
99	Portable High Pressure Soap Injector	Model FSI-1	MITI Manufacturing Co., Inc.	E-197
100	Decon Formula MDF-500	MDF-500	Modec, Inc.	E-199
101	MDF-120	DF120	Modec, Inc.	E-201
102	MDF-200 Formula	MDF-200	Modec, Inc.	E-203
103	Sandia Decon Formulation DF200	DF200	Modec, Inc.	E-205
104	12v Tac-Pac	Tac-Pac	Modec, Inc.	E-207
105	ATD-5F Portable CAF Device	ATD-5F CAF	Modec, Inc.	E-209
106	CAF Tac-Pac	CAF Tac-Pac	Modec, Inc.	E-211
107	FI-25	FI-25	Modec, Inc.	E-213
108	FI-25HP	FI-25HP	Modec, Inc.	E-215
109	Flex-A-Lite	2600	Modec, Inc.	E-217
110	MDF LSA-100 Sprayer	LSA-100	Modec, Inc.	E-219
111	MicroFogger	MicroFogger	Modec, Inc.	E-221
112	Tactical Backpack 4000-BP-B	4000-BP-B	Modec, Inc.	E-223
113	FAST-ACT	FA15-0500, FA15-1000, FA15-2000, FA15-4000, FA15-5000	NanoScale Materials, Inc.	E-225
114	All-Clear	Not specified	National Foam, Inc.	E-227
115	Decon-Shield	NKSPDS005	Nor E First Response, Inc.	E-229
116	MEDecon Shelters	MPS-LG	Nor E First Response, Inc.	E-231
117	Decon Now (Full-Body Wash Towel)	NKSPIC035	Nor E First Response, Inc.	E-233
118	IDEcon (Pre and Post) Personal Care and Identity Kit	NKSPI0100	Nor E First Response, Inc.	E-235
119	Spilfyter	Spilfyter Brand	NPS Corporation	E-237
120	Iodowash	Wash	Radiation Decontamination Solutions, LLC	E-239

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121	Emergency Rad Decon Kit	Decon Kit	Radiation Decontamination Solutions, LLC	E-241
122	Isolation Shelter	Isolation Shelter	Reeves EMS	E-243
123	J Series Tactical Soft Shelter (TSS)	J Series	Reeves EMS	E-245
124	M Series Shelter System	M Series	Reeves EMS	E-247
125	XB Series Shelter System	XB Series	Reeves EMS	E-249
126	2 Lane First Response System	2 Lane First Response	Reeves EMS	E-251
127	2 Lane Hospital System	2 Lane Hospital	Reeves EMS	E-253
128	2 Lane Tactical Hospital System	2 Lane Tactical	Reeves EMS	E-255
129	2 or 3 Lane First Response System	2 or 3 Lane First Response	Reeves EMS	E-257
130	2 or 3 Lane Hospital System	2 or 3 Lane Hospital	Reeves EMS	E-259
131	2 or 3 Lane Tactical Hospital System	2 or 3 Lane Tactical	Reeves EMS	E-261
132	3 Lane First Response System	3 Lane First Response	Reeves EMS	E-263
133	3 Lane Hospital System	3 Lane Hospital	Reeves EMS	E-265
134	3 Lane Tactical Hospital System	3 Lane Tactical	Reeves EMS	E-267
135	Field Shower System	2-Stall; 4-Stall; 6-Stall	Reeves EMS	E-269
136	Individual Decon System	Individual Decon	Reeves EMS	E-271
137	PVC Shower	Single-Stall	Reeves EMS	E-273
138	Type 1000 Individual Decon Shower Unit	T1000	RFD Beaufort	E-275
139	Type 3000 Lightweight Mass Decon Shower System	T3000	RFD Beaufort	E-277
140	Type 5500-D Mass Decon Shower System	T5500-D	RFD Beaufort	E-279
141	Type 2000 Personal Decontamination Shower Unit	T2000	RFD Beaufort	E-281
142	Decon Shower	HDS-6012	RMC MEDICAL	E-283
143	Decon Pool	HDP-6000	RMC MEDICAL	E-285
144	Disposable Decon System	PDS-5000 E/H	RMC MEDICAL	E-287
145	Hospital Decontamination Tabletop	PDS-2000	RMC MEDICAL	E-289
146	Expedient MOPP Exchange System	EMES	Survival, Inc.	E-291
147	Hit and Run Kit 2	Hit and Run Kit 2	Survival, Inc.	E-293
148	2 Line Decontamination System	SYS-2 Line 8-20-1	TVI Corporation	E-296
149	3 Line Decontaminant System	SYS-3 Line 11-20-1	TVI Corporation	E-298

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150	4 Line Decontamination System	SYS-SD4-WxA08-GZ	TVI Corporation	E-300
151	Consequence Response Decontamination System	SYS-SD4-WxA10-GZ	TVI Corporation	E-302
152	High Capacity Decontamination System	SYS-HC-UZA16-GZ	TVI Corporation	E-304
153	Professional Individual Decontamination System	SYS-Ind-10-13-01	TVI Corporation	E-306
154	ATC/DECON	ATC/DECON	US Foam Technologies, Inc.	E-308
155	RDDS M-700	M-700	US Foam Technologies, Inc.	E-310
156	SIMPLE CAFS	95-125-250D	US Foam Technologies, Inc.	E-312
157	SENTINEL 3	3	US Foam Technologies, Inc.	E-314
158	SENTINEL 30	30	US Foam Technologies, Inc.	E-316
159	SENTINEL 60	60	US Foam Technologies, Inc.	E-318
160	SENTINEL 120	120	US Foam Technologies, Inc.	E-320

GENERAL

CASCAD™ Foam System
Model: CASCAD

Allen-Vanguard, Inc.
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http://www.rkb.mipt.org/
Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Aqueous liquid

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: In stock

Current Users: U.S. Army Technical Escort Unit (TEU); U.S. Marine Corps Chem Bio Incident Response Force; FBI; Secret Service; CDC; First responders in over 20 U.S. cities; Canadian RCMP CBRN response teams; and CBRN response teams worldwide

Description: CASCAD™ (Canadian Aqueous System for CB Agent Decontamination) is a unique foam based decontamination which is versatile and safe to use, works with fresh or salt water, can be used on vehicles, equipment, buildings, aircraft, and ships, and even has application in civil defense and firefighting. Its high foam application rate means it can suppress harmful vapors and cover equipment faster than any other system currently available. The CASCAD™ vehicle/equipment decontaminant, when sprayed, has an aqueous base, is user friendly, biodegradable, nontoxic, does not attack paints or rubbers, and is noncorrosive when used as directed. It destroys all known military CB agents within NATO specified times.

Decontamination Process: Chemical (neutralizes contaminants)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: This is optimized for the military requirement and provides the fastest kill times and the best performance against thickened agents. Complete decontamination of hardware and infrastructure.

Testing: All tests conducted at independent government laboratories
Test data is available from the vendor (905-633-8800)

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: GA, GB, GD, TGD, VX, HD, and THD

Bio Agents: Erwinia, anthrax, Bacillus subtilus, and Clostridium sporogenes

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Agent to decon ratio required: 100:1

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: Premeasured containers available depending on equipment of choice

Weight: GP2100 decontaminant—10.5 kg (23 lb) pail

GP2100 decontaminant—4.2 kg (9.3 lb) pail

GP2100 decontaminant—730 g (1.72 lb) bottle

GCE2000 surfactant—19 L (5 gal) pail

GCE2000 surfactant—950 mL (1 qt) bottle

GPX co-solvent—19 L (5 gal) pail

GPX co-solvent—4 L (1 gal) pail

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Consumable chemical

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Not applicable

Shelf Life: >5 yr

Storage Conditions: Dry, dark cool ambient temperature

Durability: Not specified

Environmental Conditions: -20 °C to 55 °C (0 °F to 130 °F)

Environmental Considerations: MSDS data available

Resources: Not specified

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: AirFoam Dolly system, BackPack Air Foam System, Air Trolley Foam System, Palletized, Integrated Military System, and UCS Trailer

Applicable Regulations: GP 2100 decontaminant: UN 2465 Class II

GENERAL

Decontaminant Dispersal Suppressant Foam (DDSF™)

Model: TD-CH-202—135 L/35 U.S. gal

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 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
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 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid foam

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: In stock

Current Users: U.S. Army Technical Escort Unit (TEU); U.S. Marine Corps Chem Bio Incident Response Force; FBI; Secret Service; CDC; First responders in over 20 U.S. cities; Canadian RCMP CBRN response teams; and CBRN response teams worldwide

Description: Single shot, air foam dolly system, blast mitigation and decontamination. Decontaminant Dispersal Suppressant Foam (DDSF™) has similar capabilities to DSF™ and is designed to be used within the Universal Containment Enclosure (blast mitigation in the event of a chemical or biological device).

Decontamination Process: Chemical (neutralizes contaminant)

Application

Infrastructure decontamination

Application Notes: Blast mitigation and decontamination. It contains a decontaminant that will enable the foam to kill CB agents although not as quickly as SDF™ or CASCAD™.

Testing: All tests conducted at independent government laboratories
 Test data is available from the vendor (905-633-8801)

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: HD

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Not specified

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: Premeasured containers available depending on equipment of choice

Weight: GP2100 Decontaminant—10.5 kg (23 lb) pail

GP2100 Decontaminant—4.2 kg (9.3 lb) pail

GP2100 Decontaminant – 730 g (25.7 oz) bottle

GCE2000 Surfactant—19 L (5 gal) pail

GCE2000 Surfactant—950 mL (1 qt) bottle

GPX Co-solvent—19 L (5 gal) pail

GPX Co-solvent—4 L (1 gal) pail

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Consumable chemical

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Not applicable

Shelf Life: >5 yr

Storage Conditions: Dry, dark cool ambient temperature

Durability: Not applicable

Environmental Conditions: -20 °C to 55 °C (0 °F to 130 °F)

Environmental Considerations: MSDS data available

Resources: Not specified

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: AirFoam Dolly system, BackPack Air Foam System, Air Trolley Foam System, Palletized, Integrated Military System, and UCS Trailer

Applicable Regulations: GP 2100 decontaminant: UN 2465 Class II

GENERAL

Dispersal Suppressant Foam (DSF™)**Model:** TD-CH-203—135 L/35 U.S. gal

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 sales@allen-vanguard.com
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 http://www.rkb.mipt.org/
 Allen-Vanguard brochures

**Status:** The vendor has responded—6/29/2006**Category:** **Commercial Decontaminant**
Type: Liquid foam**Unit Cost:** Please call Allen-Vanguard for current pricing**Availability:** In stock**Current Users:** U.S. Army Technical Escort Unit (TEU); U.S. Marine Corps Chem Bio Incident Response Force; FBI; Secret Service; CDC; First responders in over 20 U.S. cities; Canadian RCMP CBRN response teams; and CBRN response teams worldwide**Description:** Dispersal Suppressant Foam (DSF™) single shot, air foam dolly system, and blast mitigation. Dispersal Suppressant Foam (DSF™) is optimized for Blast Mitigation, it has no capability against CBAs, but it can be used and tested to aid the capture and removal of radiological particles.**Decontamination Process:** Chemical removal

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Equipment decontamination [CBR hardened items (e.g., resistant coatings, buttoned up items), non-CBR hardened items (e.g., plastics, metals, coatings), and personal protective equipment (PPE)]

Infrastructure decontamination (confined spaces, open areas, building materials, and soil/terrain)

Blast Mitigation and will help capture radiological materials

Testing: All tests conducted at independent government laboratories

Test data is available from the vendor (905-633-8801)

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** Not specified**Bio Agents:** Not specified**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Technitium-99m and lanthanum 140**Decontamination Solutions:** Blend of proprietary surfactants**Capacity Throughput:** Not specified

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: Premeasured containers available depending on equipment of choice

Weight: GP2100 Decontaminant—10.5 kg (23.1 lb) pail

GP2100 Decontaminant—4.2 kg (9.3 lb) pail

GP2100 Decontaminant—730 g (1.61 lb) bottle

GCE2000 Surfactant—19 L (5 gal) pail

GCE2000 Surfactant – 950 mL (1 qt) bottle

GPX Co-solvent—19 L (5 gal) pail

GPX Co-solvent—4 L (1.1 gal) pail

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable, can be carried by backpack or by hand

Consumables Required: Consumable chemical

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Not applicable

Shelf Life: >5 yr

Storage Conditions: Not specified

Durability: Not applicable

Environmental Conditions: -20 °C to 55 °C (0 °F to 130 °F)

Environmental Considerations: Biodegradable

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: AirFoam Dolly system; Palletized, Integrated Military System; and UCS Trailer

Applicable Regulations: Unclassified

GENERAL

Surface Decontaminant Foam (SDF™)

Model: TD-CG-201—135 L/35 U.S. gal

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
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 905-643-8824 (Fax)
 Laura Cochrane
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 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid foam

Unit Cost: Please call Allen-Vanguard for current pricing
Availability: In stock
Current Users: U.S. Army Technical Escort Unit (TEU); U.S. Marine Corps Chem Bio Incident Response Force; FBI; Secret Service; CDC; First responders in over 20 U.S. cities; Canadian RCMP CBRN response teams; and CBRN response teams worldwide

Description: Single shot, air foam dolly system, surface decontamination. Surface Decontaminant Foam (SDF™) has increased decontamination capability, which provides a means for first responders to rapidly decontaminate an area using the same chemicals as DDSF™, albeit at higher concentrations. Particularly relevant in scenarios where the device has already activated and in building and vehicle remediation.

Decontamination Process: Chemical (neutralizes contaminants)

Application	
	Infrastructure decontamination

Application Notes: Civil defense applications
Testing: All tests conducted at independent government laboratories. Test data is available from the vendor (905-633-8802).

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified
Chemical Agents: GA, GB, GD, VX, HD, and GF
Bio Agents: Anthrax, avian influenza, Aspergillus niger, Bacillus subtilus, and Clostridium sporogenes
TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Malathion

Rad/Nuc Materials: Not specified
Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents
Capacity Throughput: Agent to decon ratio required: 100:1
Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: Premeasured containers available depending on equipment of choice

Weight: GP2100 Decontaminant—10.5 kg (23 lb) pail

GP2100 Decontaminant—4.2 kg (9.3 lb) pail

GP2100 Decontaminant – 730 g (25.7 oz) bottle

GCE2000 Surfactant—19 L (5 gal) pail

GCE2000 Surfactant—950 mL (1 qt) bottle

GPX Co-solvent—19 L (5 gal) pail

GPX Co-solvent—4 L (1 gal) pail

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Consumable chemical

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Not applicable

Shelf Life: >5 yr

Storage Conditions: Dry, dark cool ambient temperature

Durability: Not specified

Environmental Conditions: -20 °C to 55 °C (0 °F to 130 °F)

Environmental Considerations: MSDS data available

Resources: Not specified

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: AirFoam Dolly system, BackPack Air Foam System, Air Trolley Foam System, Palletized, Integrated Military System, and UCS Trailer

Applicable Regulations: Not specified

GENERAL

Air Foam Dolly System (AFDS)**Model:** Decon only (TD-AC-000)

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 11490 Commerce Park Drive, Suite 360
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 Laura Cochrane
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 http://www.rkb.mipt.org/
 Allen-Vanguard brochures

**Status:** The vendor has responded—6/29/2006**Category:** Delivery
Type: Liquid foam**Unit Cost:** Please call Allen-Vanguard for current pricing**Availability:** In stock**Current Users:** Allen-Vanguard's Air Foam Dolly System is currently in service with the military, first responders, police, and fire departments in the U.S.A. and Canada, and other friendly nations

Description: The Air Foam Dolly System, Decon (AFDS), is a unique portable self-contained unit with a primary function for CBRN decontamination. A single person can deploy and operate the system which uses pressurized air and a chemical mixing tank to produce a unique decontamination foam. The AFDS can perform emergency decontamination of CB agents on hardware and structural surfaces. The sticky foam generated will adhere well to walls and ceilings and will kill both Biological and CAs.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Explosive blast and CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Ideal for first responders. Emergency spot decontamination and medium scale decontamination for equipment and infrastructure.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** GA, GB, GD, VX, HD, GF, THD, and TGD**Bio Agents:** Anthrax, avian influenza, Aspergillus niger, Bacillus subtilus, and Clostridium sporogenes**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents**Capacity Throughput:** 142 L (37.5 U.S. gal) liquid mixing and storage tank

Nozzle type: 5.1 cm (2 in) decontamination nozzle

Decontamination capability: 130 m² (1400 ft²)

Foam chemistry: CASCAD™ or SDF™
Motive force: pressurized air from cylinder
Operating pressure: 90 psi

Set-up Time: Deployable in minutes. The dual-purpose Air Foam Dolly System enables a CBRNE incident to be controlled efficiently and effectively.

PHYSICAL PARAMETERS

Size: 94 cm x 61 cm x 132 cm (37 in x 24 in x 52 in) l,w,h

Weight: Weight unloaded: 91.4 kg (201 lb); Weight loaded: 227.3 kg (500 lb)

Power Requirements: Pressurized air cylinder. Available with MSA or CE type air cylinder.

LOGISTICS

Portability: One man operable. Dolly is rugged steel construction with two run flated tires and two mutely-directional caster wheels. Dual handle positions allow for easy maneuvering.

Consumables Required: CASCAD™ and Surface Decontaminant Foam (SDF™)

Chemicals supplied premeasured

Maintenance Required: Before each use ensure air cylinder is full. Semi-annually check seal on tank cover. Visually check hose for damage and air in tires. Every 5 yr perform hydrostatic testing on air cylinder.

Maintenance Cost: Not specified

Use/Reuse: Air Foam Dolly System can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Air Foam Dolly construction: rugged steel frame with integral control panel. Tank construction coated stainless steel.

Environmental Conditions: It has been successfully used in temperatures from -20 °C to 55 °C (0 °F to 130 °F).

Environmental Considerations: Not specified

Resources: One person operable, one man portable

Motive force—air cylinder

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by the manufacturer

Operator Training Required: <8 h provided by the manufacturer

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: 4-, 6-, or 8-panel enclosure for blast/CBRN mitigation and decontamination

Applicable Regulations: Not specified

GENERAL

Air Trolley System

Model: TD-BP-049

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 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: In stock

Current Users: Allen-Vanguard's Air Trolley System is currently in service with the military, first responders, police, and fire departments in the U.S.A. and Canada, and other friendly nations

Description: The Air Trolley System is a portable self-contained unit designed for performing emergency spot decontamination of Chemical and Biological Agents on hardware or structural surfaces. The Air Trolley System does not interfere with a First Responder wearing a Level A/B. The Air Trolley System uses air pressure to force decontaminant chemicals (CASCAD™) through a specially designed nozzle to produce thick, sticky foam that adheres well to walls and ceilings will kill both CB agents.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Emergency spot decontamination for equipment and infrastructure decontamination.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: GA, GB, GD, TGD, VX, HD, and THD

Bio Agents: Anthrax, BG spores, Erwina, bacillus subtilus, and clostridium sporogenes

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Amount of decontaminant foam produced: 75 L to 80 L (20 U.S. gal to 21 U.S. gal)

Nozzle type: aerating gun

Foam chemistry: CASCAD™
Foam projection: up to 3.6 m (12 ft)
Motive force: pressurized air from bottle
Operating pressure: 90 psi

Set-up Time: 8 min to 15 min

PHYSICAL PARAMETERS

Size: 46 cm x 102 cm (18 in x 40 in) w,h

Weight: Weight unloaded—18 kg (39.6 lb); Weight loaded—31.5 kg (69.4 lb)

Power Requirements: Pressurized air cylinder

LOGISTICS

Portability: One man operable, additional tools can be attached to trolley

Consumables Required: CASCAD™ Chemicals supplied premeasured

Maintenance Required: Before each use ensure air cylinder is full. Semi-annually check seal on tank cover. Visually check hose for damage. Every 5 yr perform hydrostatic testing on air cylinder.

Maintenance Cost: Refilling of air cylinder: \$10. One full air cylinder will provide one usage.

Use/Reuse: Air Trolley System can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Trolley construction high impact plastic and steel. Tank construction coated stainless steel.

Environmental Conditions: It has been successfully used in temperatures from -20 °C to 55 °C (0 °F to 130 °F).

Environmental Considerations: Not specified

Resources: One person operable, one man portable. Motive force—air cylinder.

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h, not provided by manufacturer

Operator Training Required: <8 h, not provided by manufacturer

Training Available: Training not available

Manuals Available: User instruction manual (hard copy)

Support Equipment: Included air cylinder

Applicable Regulations: Not specified

GENERAL

Backpack Air Foam System

Model: TD-BP-001

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
 613-747-0723 (Fax)
 sales@allen-vanguard.com
 Request for technical information:
 Allen-Vanguard Corporation
 921 Barton Street
 Stoney Creek, Ontario L8E 5P5
 866-434-4514 (Tel, toll free USA and Canada)
 905-643-8801 (Tel)
 905-643-8824 (Fax)
 Laura Cochrane
 lcochrane@allen-vanguard.com
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 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: In stock

Current Users: Allen-Vanguard's BackPack System is currently in service with the military, first responders, police, and fire departments within the U.S.A. and Canada, and other friendly nations

Description: The Backpack Air Foam System is a portable self-contained unit designed for performing emergency spot decontamination of CB agents on hardware or structural surfaces. The Backpack Air Foam System uses air pressure to force decontaminant chemicals (CASCAD™) through a specially designed nozzle to produce thick, sticky foam that adheres well to walls and ceilings will kill both CB agents.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Man-portable unit for emergency decontamination. CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Emergency spot decontamination for equipment and infrastructure decontamination.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: GA, GB, GD, TGD, VX, HD, and THD

Bio Agents: Anthrax, BG spores, Erwina, bacillus subtilus, and clostridium sporogenes

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Joint Government testing conducted by USA, France and Canada

Painted plate decontaminated by typical decontamination procedures and dry scrubbing—end dose rate of 0.55 mRem/h

1st decontamination with Foam—end dose rate of 0.33 mRem/h

2nd decontamination with Foam—end dose rate of 0.22 mRem/h

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Amount of decontaminant foam produced: 75 L to 80 L (20 U.S. gal to 21 U.S. gal)

Nozzle type: aerating gun

Foam chemistry: CASCAD™

Decontamination capability: 13 m² (140 ft²)

Foam projection: up to 3.6 m (12 ft)

Motive force pressurized air from cylinder

Set-up Time: 8 min to 15 min

PHYSICAL PARAMETERS

Size: Not specified

Weight: Weight unloaded—14 kg (31.5 lb); Weight loaded—27.5 kg (60 lb)

Power Requirements: Pressurized air cylinder

LOGISTICS

Portability: Man portable, can be carried by backpack or by hand

Consumables Required: CASCAD™

Maintenance Required: Before each use ensure air cylinder is full. Semi-annually check seal on tank cover and visually check hose for damage. Every 5 yr perform hydrostatic testing on air cylinder.

Maintenance Cost: Refilling of air cylinder: \$10

One full air cylinder will provide one usage

Use/Reuse: Backpack can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: The backpack is designed to withstand rough handling.

Pack construction: framed cordura. Tank construction: coated stainless steel.

Environmental Conditions: It has been successfully used in temperatures from -20 °C to 55 °C (0 °F to 130 °F).

Environmental Considerations: Not specified

Resources: One person operable; man portable

Motive force—air cylinder

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h hours not provided by manufacturer

Operator Training Required: <8 h hours not provided by manufacturer

Training Available: Training not available

Manuals Available: User instruction manual (hard copy)

Support Equipment: Included air cylinder

Applicable Regulations: Not specified

GENERAL

Decon 911 Backpack Air Foam System

Model: TD-DP-00-00-000

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
 613-747-0723 (Fax)
 sales@allen-vanguard.com
 Request for technical information:
 Allen-Vanguard Corporation
 921 Barton Street
 Stoney Creek, Ontario L8E 5P5
 866-434-4514 (Tel, toll free USA and Canada)
 905-643-8801 (Tel)
 905-643-8824 (Fax)
 Laura Cochrane
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 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: 6 wk to 8 wk

Current Users: Developed under a research and development program sponsored by the CBRN Research and Technology Initiative Project

Description: The new Decon 911 Backpack system is a portable self contained unit designed for performing emergency spot decontamination of CB Agents on hardware or structural surfaces. The new dual tank Backpack incorporates a design for larger liquid volumes, enhanced material compatibility, and cross applications for other decontaminates or hazmat scenarios. The mechanical design and packaging of the chemistry allows for greater pot life or time between mixing and application. The sticky foam generated will adhere well to walls and ceilings and will kill both Biological and CAs.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Emergency spot decontamination for equipment and infrastructure decontamination.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: GA, GB, GD, VX, HD, and GF

Bio Agents: Anthrax, avian influenza, Aspergillus niger, Bacillus subtilus, and Clostridium sporogenes

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Amount of decontaminant foam produced: 151 L (40 U.S. gal)

Decontamination capability: 26 m² (280 ft²)

Foam projection: up to 3.6 m (12 ft)

Set-up Time: 8 min to 15 min

PHYSICAL PARAMETERS

Size: 38 cm x 25 cm x 60 cm (15 in x 10 in x 23.5 in) l,w,h

Weight: Weight unloaded 11 kg (25 lb); Weight loaded 31 kg (68 lb)

Power Requirements: Pressurized air cylinder

LOGISTICS

Portability: Man portable, can be carried by backpack or by hand

Consumables Required: CASCAD™ and Surface Decontaminant Foam (SDF™)

Maintenance Required: Before each use ensure air cylinder is full. Semi-annually check seal on tank cover and visually check hose for damage. Every 5 yr perform hydrostatic testing on air cylinder.

Maintenance Cost: Refilling of air cylinder: \$10

One full air cylinder will provide one usage

Use/Reuse: Backpack can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: The backpack is designed to withstand rough handling. Pack construction: Cordura. Tank construction: Roto molded low density polyethylene.

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: One person operable; man portable

Motive force—air cylinder

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by manufacturer

Operator Training Required: <8 h not provided by manufacturer

Training Available: Training not available

Manuals Available: User instruction manual (hard copy)

Support Equipment: Included air cylinder

Applicable Regulations: Not specified

GENERAL

Decon 911 Response Trike**Model:** TD-GU-00-00-000

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
 613-747-0723 (Fax)
 sales@allen-vanguard.com
 Request for technical information:
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 921 Barton Street
 Stoney Creek, Ontario L8E 5P5
 866-434-4514 (Tel, toll free USA and Canada)
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 905-643-8824 (Fax)
 Laura Cochrane
 lcochrane@allen-vanguard.com
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 http://www.rkb.mipt.org/
 Allen-Vanguard brochures

**Status:** The vendor has responded—6/29/2006**Category:** Delivery
Type: Liquid foam**Unit Cost:** Please call Allen-Vanguard for current pricing**Availability:** 6 wk to 8 wk**Current Users:** Developed under a research and development program sponsored by the CBRN Research and Technology Initiative Project

Description: Decon 911 Response Trike is a portable self-contained unit designed for performing emergency decontamination of larger surface area for CB agents in buildings, on hardware, or structural surfaces. The design was careful to include considerations for building remediation access through doorways and on stairs. The mechanical design and packaging of the chemistry now allows for greater pot life or time between mixing and application. A single person can deploy and work the system using pressurized air and two chemical mixing tanks to spray the decontaminant. The new system incorporates product enhancement for increased material compatibility, and cross applications for other decontaminants or hazmat scenarios. The sticky foam generated will adhere well to walls and ceilings and will kill both CB agents.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Ideal for first responders doing building remediation. Emergency decontamination and medium scale decontamination specifically for buildings, equipment, and infrastructure.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** GA, GB, GD, VX, HD, and GF**Bio Agents:** Anthrax, avian influenza, Aspergillus niger, Bacillus subtilis, and Clostridium sporogenes**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: 32 U.S. gal (121 L) liquid volume storage tank

Nozzle type: 2 in (5.1 cm) decontamination nozzle

Decontamination capability: 93 m² (1000 ft²)

Motive force: Pressurized air from cylinder

Operating pressure: 100 psi

Set-up Time: Deployable in minutes. The Decon 911 Response Trike enables a CBRNE incident to be controlled efficiently and effectively.

PHYSICAL PARAMETERS

Size: 63.5 cm x 84 cm x 91 cm (25 in x 33 in x 36 in) l,w,h

Weight: Weight unloaded—36 kg (80 lb); Weight loaded—145 kg (320 lb)

Power Requirements: Pressurized air cylinder

LOGISTICS

Portability: One man operable. One man portable. Tricycle wheel configuration allows for greater maneuverability.

Consumables Required: CASCAD™ Chemicals supplied premeasured

Maintenance Required: Before each use ensure air cylinder is full. Visually check hose for damage. Every 5 yr perform hydrostatic testing on air cylinder.

Maintenance Cost: Not specified

Use/Reuse: Decon 911 Response Trike can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: The Decon 911 Response Trike is designed to withstand rough handling. Material construction: Low density polyethylene. Tank construction: Roto molded low density polyethylene.

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: One person operable, one man portable

Motive force—air cylinder

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by the manufacturer

Operator Training Required: <8 h provided by the manufacturer

Training Available: 1 d training courses available from Allen-Vanguard

Manuals Available: User instruction manual (hard copy)

Support Equipment: Included air cylinder

Applicable Regulations: Not specified

GENERAL

Palletized Containment System

Model: TD-PS-000

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
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 sales@allen-vanguard.com
 Request for technical information:
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 905-643-8824 (Fax)
 Laura Cochrane
 lcochrane@allen-vanguard.com
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 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
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Status: The vendor has responded—6/29/2006

Category: **Delivery**
Type: Liquid foam and containment

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: 8 wk to 12 wk

Current Users: Allen-Vanguard's Decontamination Systems are currently in service with the military, first responders, police, and fire departments in the U.S.A. and Canada, and other friendly nations

Description: The Palletized Containment System is a self-contained unit designed for large scale decontamination roles. A secondary function, when used with an enclosure is for blast mitigation and containment. The Palletized system can be transported to a CBRN incident either by trailer or on a flat bed truck. The system can use any type of water source to dispense the decontamination foam. Multiple hoses can be attached at the same time for rapid foam dispensing.

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Explosive blast and CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Ideal for large scale decontamination of at CBRN incidents on hardware, equipment, and structural surfaces.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: GA, GB, GD, VX, HD, GF, THD, and TGD

Bio Agents: Anthrax, avian influenza, Aspergillus niger, Bacillus subtilus, and Clostridium sporogenes

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Blend of dichloroisocyanuric acid and buffers, surfactants, and co-solvents

Capacity Throughput: Tank capacities:

- Water 378 L (100 U.S. gal)
- Chemical 2 x 37 L (10 U.S. gal)

Pump data horsepower: 18 hp Wajax Water Pump
Foam proportioning units: 2 x FoamPros (12 V dc)
Equipment heater: gasoline fuel, 12 V dc, 3000 W
Power battery charger: 12 V dc, 10 amp automatic; 12 V dc alternator: 100 A
Set-up Time: Can be run by two men (one on the machine system and one on foam delivery)

PHYSICAL PARAMETERS

Size: 1.14 m x 1.1 m x 2.1 m (45 in x 42 in x 84 in) l,w,h
Weight: Weight unloaded: 725 kg (1600 lb); Weight loaded: 1180 kg (2600 lb)
Power Requirements: Power battery charger: 12 V dc, 10 A automatic
100 A: 12 V dc Alternator

LOGISTICS

Portability: Removable wheels are provided as an option for storage and mobility on hard surfaces while forklift openings and hoisting eyes are incorporated into the enclosure for loading onto a truck or trailer, or for deployment in locations with accessibility challenges. Three sides of the enclosure feature large access doors for ease of operation, maintenance and storage.
Consumables Required: Decontaminant solutions
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Steel construction
Environmental Conditions: It has been successfully used in temperatures from -20 °C to 55 °C (0 °F to 130 °F).
Environmental Considerations: Not specified
Resources: Two person operable. Gasoline fuel.
Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by the manufacturer
Operator Training Required: <8 h provided by the manufacturer
Training Available: 1 d training courses available from Allen-Vanguard
Manuals Available: User instruction manual (hard copy)
Support Equipment: 4-, 6-, or 8-panel enclosure for Blast/CBRN mitigation and decontamination.
Applicable Regulations: Not specified

GENERAL

Defoamer

Model: TD-DF-000

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
 613-747-0723 (Fax)
 sales@allen-vanguard.com
 Request for technical information:
 Allen-Vanguard Corporation
 921 Barton Street
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 866-434-4514 (Tel, toll free USA and Canada)
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 905-643-8824 (Fax)
 Laura Cochrane
 lcochrane@allen-vanguard.com
 partt@allen-vanguard.com
 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
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Status: The vendor has responded—6/29/2006

Category: Accessory

Type: Cleanup (containment and mitigation)

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: Not specified

Current Users: Switzerland, Australia

Description: The Defoamer System (patent pending) provides a fast and effective means of removing foam for clean up after decontamination operations with foam based decontaminants. Large volumes of foam can be simply handled by switching the defoamer head onto additional UN hazmat shipping containers. The system is also used for the Decontamination Foams (CASCAD,SDF,DDSF, and DSF) removal after Surface and/or Area decontamination. It has been tested on linoleum, floor tile, carpet, ceramic tile, plastic, plywood, and concrete surfaces. The removal of Decontaminant Family of Foams does require the use of the Surface Decon Nozzle (supplied with the Defoamer).

Decontamination Process: Removal and containment of foam

Application

Application Notes: CB agent containment and mitigation. Rapid and effective CB decontamination and kill capability. Radiological particle containment and removal capability. Simple removal of foam contaminated with CBR agents.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not applicable

Capacity Throughput: Will integrate with a UN certified hazmat shipping container capable of holding over 60 gal (227 L) of defoamed liquid

Set-up Time: Deployed in minutes

PHYSICAL PARAMETERS

Size: 71 cm x 58 cm x 94 cm (28 in x 23 in x 37 in)

Weight: Not specified

Power Requirements: Available in 110 V and 220 V systems

LOGISTICS

Portability: Optional hand cart is available, one man portable

Consumables Required: Defoaming chemical premeasured

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Backpack can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo limited warranty against defects in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: <2 h provided by the manufacturer

Operator Training Required: <2 h provided by the manufacturer

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Included air cylinder

Applicable Regulations: Not specified

GENERAL

De-Con Pac™**Model:** DCP-050-T, DCP-050-3, DCP-050-1, DCP-050-6T

Andax Environmental
 613 W. Palmer St.
 St. Marys, Kansas 66536
 800-999-1358 (Tel)
 Robin Sullivan
 rsullivan@andax.com
<http://www.andax.com>
 Andax CD
<http://store.andax.com/index.asp?>

**Status:** The vendor has responded—6/15/2006**Category:** Shelter
Type: Shower system**Unit Cost:** Currently \$1.22K for one complete single shower unit (prices subject to change without notice)**Availability:** 1 wk to 2 wk**Current Users:** Available upon request**Description:** Emergency response showers**Decontamination Process:** Physical (removes decontaminant)

Application

Personnel decontamination

Application Notes: Disaster response—natural or man-made. Whether it's a Single-Pac, Tri-Pac, Six-Pac, or the new T-Pac, all De-Con Pac configurations offer instant decontamination capabilities that expand with the size of the emergency, maintain victim privacy, and can be set up in one or multiple locations as the incident expands by one or more people with little or no training.

Testing: Field tested. Most recently, exclusive of training exercises, during the Katrina Disaster

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable**Chemical Agents:** Not applicable**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Water**Capacity Throughput:** 10 units to 15 units per hour**Set-up Time:** Fully functional in 3 min with 1 to 2 people; 10 s when prestaged

PHYSICAL PARAMETERS

Size: Open: 1.5 m x 1.5 m x 2.7 m (5 ft x 5 ft x 8 3/4 ft); stored: 0.25 m x 0.25 m x 1.27 m (10 in x 10 in x 50 in); staged: 0.4 m x 0.4 m x 2 m (16 in x 16 in x 80 in)**Weight:** 20 kg (44 lb)**Power Requirements:** Not applicable

LOGISTICS

Portability: Handheld portable**Consumables Required:** Not applicable**Maintenance Required:** Not specified

Maintenance Cost: Not specified

Use/Reuse: Clean and reuse with minimal effort

Shelf Life: Can be stored for an indeterminate amount of time

Storage Conditions: Between -18 °C and 60 °C (0 °F and 140 °F)

Durability: Reasonable care and use will not affect the longevity of the unit

Environmental Conditions: Optimal use conditions are above freezing and below 43 °C (110 °F)

Environmental Considerations: Extreme cold is detrimental to waste disposal

Resources: One person set up and monitoring

Warranty: 45 d money back, satisfaction guarantee. 1 yr manufacturer's defect.

SPECIAL PARAMETERS

Operator Skills Required: Minimal

Operator Training Required: Minimal

Training Available: Training CD or DVD

Manuals Available: Not specified

Support Equipment: None required. Many patient comfort options are available.

Applicable Regulations: None

GENERAL

CO₂ Snow Jet**Model:** K1-05/K1-10 Standard Units

Applied Surface Technologies
 15 Hawthorne Drive
 New Providence, New Jersey 07974
 908-464-6675 (Tel)
 908-464-7475 (Fax)
 roberts@co2clean.com
 http://www.co2clean.com

**Status:** The vendor has responded—6/14/2006**Category:** Delivery**Type:** Gas—CO₂**Unit Cost:** \$1.79K to \$1.85K**Availability:** Within 1 wk**Current Users:** Not specified

Description: The standard unit (K1-10) is supplied with two nozzles, one asymmetric venturi stainless steel on the unit and a second low velocity nozzle; an on/off gun; a 10 ft flexible stainless steel PTFE lined hose; a cylinder fitting; an optional 0.5 μ sintered stainless steel filter; and an optional 0 psi to 2000 psi pressure gauge. A 12/24 V dc or 120 V ac solenoid valve can be supplied in place of on/off gun. The K1-05 comes with a 5 ft PTFE lined hose.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Manual CO₂ snow jet for cleaning particles of all sizes**Testing:** Developmental testing is complete

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** Not specified**Bio Agents:** Not specified**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Carbon dioxide**Capacity Throughput:** Not specified**Set-up Time:** Quick

PHYSICAL PARAMETERS

Size: Small, handheld**Weight:** 1.34 kg (3 lb)**Power Requirements:** None required

LOGISTICS

Portability: Handheld**Consumables Required:** None required**Maintenance Required:** Not required**Maintenance Cost:** Not applicable

Use/Reuse: Can be reused
Shelf Life: Long time, decades
Storage Conditions: Simple
Durability: Very durable
Environmental Conditions: Deployed in most all environmental conditions
Environmental Considerations: Best used in open space, not a small room
Resources: Not specified
Warranty: 2 yr

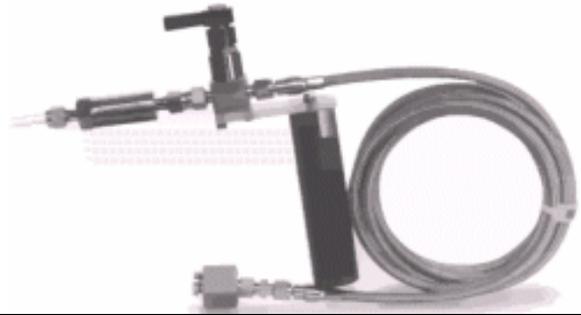
SPECIAL PARAMETERS

Operator Skills Required: Some training required
Operator Training Required: Some training required
Training Available: Training is available
Manuals Available: Manuals are available
Support Equipment: Not needed
Applicable Regulations: No regulations

GENERAL

CO2 Snow Jet**Model:** K4-05/K4-10 High Purity Units

Applied Surface Technologies
 15 Hawthorne Drive
 New Providence, New Jersey 07974
 908-464-6675 (Tel)
 908-464-7475 (Fax)
<http://www.co2clean.com>

**Status:** The vendor has responded—6/14/2006**Category:** Delivery
Type: Gas—CO₂

Unit Cost: \$1.95 to \$1.99K
Availability: Within 1 wk
Current Users: Not specified

Description: The high purity unit (K4-10) has a packless electropolished stainless steel diaphragm valve to control CO₂ flow. It has a 0.01 μ filter, a polymer nozzle, and a 3 m (10 ft) flexible stainless steel PTFE lined hose. All fittings for this unit are compression fittings as opposed to NPT fittings for the standard unit. A stainless steel nozzle also comes with this unit.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Manual CO₂ snow jet for cleaning particles of all sizes

Testing: Developmental testing is complete

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Carbon dioxide

Capacity Throughput: Not specified

Set-up Time: Quick

PHYSICAL PARAMETERS

Size: Small, handheld

Weight: 1.34 kg (3 lb)

Power Requirements: None required

LOGISTICS

Portability: Handheld

Consumables Required: None required

Maintenance Required: Not required

Maintenance Cost: Not applicable

Use/Reuse: Can be reused

Shelf Life: Long time, decades

Storage Conditions: Simple

Durability: Very durable

Environmental Conditions: Deployed in most all environmental conditions

Environmental Considerations: Best used in open space, not a small room

Resources: Not specified

Warranty: 2 yr

SPECIAL PARAMETERS

Operator Skills Required: Some training required

Operator Training Required: Some training required

Training Available: Training is available

Manuals Available: Manuals are available

Support Equipment: Not needed

Applicable Regulations: No regulations

GENERAL

Atmospheric Plasma Decontamination System
Model: Atmospheric Plasma Decontamination System

Atmospheric Glow Technologies
 924 Corridor Park Boulevard
 Knoxville, Tennessee 37932-3732
 865-777-3776 (Tel)
 865-777-3767 (Fax)
 info@atmosphericglow.com
 Suzanne South
 ssouth@atmosphericglow.com
 http://www.atmosphericglow.com



Status: The vendor has responded—6/30/2006

Category: Delivery
Type: Plasma

Unit Cost: Not specified
Availability: Prototype
Current Users: Not specified

Description: Atmospheric Glow Technologies, Inc., (AGT) is developing an innovative Atmospheric Plasma Decontamination (APD) System based upon the patented One Atmosphere Uniform Glow Discharge Plasma (OAUGDP®) technology
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: The APD system can be used to neutralize all types of BAs. Chambered BA decontamination system for sensitive material.

Testing: Neutralization of *B. atrophaeus* (spore strips) to greater than 5 logs in 20 min

OPERATIONAL PARAMETERS

Materials Decontaminated: BAs

Chemical Agents: Not applicable

Bio Agents: Bacillus and Clostridium spores, G+ and G- bacteria (*E. coli*, *Staphylococcus*, etc.) Fungi (*aspergillus*), mycobacteria. Viral simulants tested include MS2 and PhiX174.

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: One Atmosphere Uniform Glow Discharge Plasma (OAUGDP)

Capacity Throughput: 0.03 m³ to 0.06 m³ (1 ft³ to 2 ft³) of equipment per hour

Set-up Time: 20 min

PHYSICAL PARAMETERS

Size: 1.22 m x 0.91 m 1.83 m (4 ft x 3 ft x 6 ft) w,d,t

Weight: 499 kg (1100 lb) fully equipped

Power Requirements: 4 kW of 3-phase, 208 V ac

LOGISTICS

Portability: Vehicular

Consumables Required: None

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Decontamination apparatus can be cleaned and reused easily

Shelf Life: Not specified

Storage Conditions: >0 °C (32 °F)

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: 1 person

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Decontamination Shelter
Model: 7010201CS—Ambulatory

Base-X, Inc.
 6051 North Lee Highway
 Fairfield, Virginia 24435
 800-969-8527 (Tel)
 540-377-5002 (Fax)
 sales@base-x.com
 Dan Gilbert
 dgilbert@base-x.com
 http://www.base-x.com



Status: The vendor has responded—9/6/2006

Category: Shelter
Type: Shower system

Unit Cost: \$7.23K
Availability: In stock
Current Users: Not specified

Description: One lane Individual Decontamination Shelter
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Designed for use in civil or military Major Incident Response (MIR) situations, our line of decontamination shelters uses the most advanced, patented folding frame technology. The patented locking hubs and telescoping legs supply superior strength and durability.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Currently Base-X does not provide decontaminant products for systems. Decon shelter systems are designed to use any solution chosen by responding unit.

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Water and/or solution

Capacity Throughput: Two large 1.8 m x 1.5 m (6 ft x 5 ft) stalls. Throughput completely dependant on type of agent and time needed to decon particular exposure. Determined on site.

Set-up Time: 3 min to 4 min with 2 personnel

PHYSICAL PARAMETERS

Size: 1.8 m x 3 m x 2.6 m (6 ft x 10 ft x 8.5 ft) w,l,h

Weight: Shelter with all interior accessories (lanes, curtains, hoses, nozzles, and berm) preinstalled—63 kg (138 lb)

Exterior Equipment—water heater 168 kg (370 lb)

Solution Educator System—2.7 kg (6 lb)

1 Light Kit—18 kg (40 lb)

Sump Pump Kit—2.9 kg (6.5 lb)

5 floor risers—39 kg (85 lb)

Air Pump—1.4 kg (3 lb)

Power Requirements: Shelter: 15 A for pumps and lights. Water heater: Diesel/kerosene/JP-8 with 30 L (8 gal) fuel cell. (Water heater produces the 15A to run pumps and lights and 12 GPM, 150 PSI with 440 000 BTUs.)

LOGISTICS

Portability: Easily transported as part of a trailer based system. Shelter transport cube is 160 cm x 93 cm x 81 cm (63 in x 37 in x 32 in) l,w,h

Consumables Required: Water

Maintenance Required: After each use: clean and allow to thoroughly dry

Maintenance Cost: Not specified

Use/Reuse: Can be cleaned and reused with minimal effort

Shelf Life: 20 yr

Storage Conditions: Not specified

Durability: Shelter durability tested at Aberdeen Military Testing Center. Frame successfully passes 10 lb/in² snow load testing, passes 65 mph sustained/75 mph gust wind testing, and passes 50 erection/strike timed durability testing.

Environmental Conditions: Can operate in any environmental conditions

Environmental Considerations: Not specified

Resources: Multi-person portable

Warranty: 3 yr from purchase date

SPECIAL PARAMETERS

Operator Skills Required: Less than 8 hr provided by manufacture

Operator Training Required: Less than 8 hr provided by manufacture

Training Available: Initial training and refresher training provided as long as Base-X gear is owned, 24/7/365 support provided in CONUS

Manuals Available: Manuals and CD

Support Equipment: Water heater, sump pump, solution eductor, lighting, extension cord, hoses (hot, cold, gray water), air pump and hand sprayers—included in complete system

Applicable Regulations: No special DOT licensing needed to transport other than applicable state tags for trailer

GENERAL

Decontamination Shelters**Model:** 7020302CS—Ambulatory; 7020302CSM—Nonambulatory

Base-X, Inc.
 6051 North Lee Highway
 Fairfield, Virginia 24435
 800-969-8527 (Tel)
 540-377-5002 (Fax)
 sales@base-x.com
 Dan Gilbert
 dgilbert@base-x.com
 http://www.base-x.com

**Status:** The vendor has responded—9/6/2006**Category:** Shelter
Type: Shower system

Unit Cost: \$24.4K to \$27.8K
Availability: In stock
Current Users: Not specified

Description: Two Lane Decontamination System
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Designed for use in civil or military Major Incident Response (MIR) situations, our line of decontamination shelters uses the most advanced, patented folding frame technology. The patented locking hubs and telescoping legs supply superior strength and durability.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Currently Base-X does not provide decontaminant products for systems. Decon shelter systems are designed to use any solution chosen by responding unit.

Chemical Agents: Not applicable**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Water and/or solution

Capacity Throughput: Two wide lanes with three separate stations each. Nonambulatory has three overhead sprayers and conveyor included. Throughput completely dependant on type of agent and time needed to decon particular exposure. Determined on site.

Set-up Time: 5 min to 8 min with 2 personnel

PHYSICAL PARAMETERS

Size: 3.4 m x 4.6 m x 2.6 m (11 ft x 15 ft x 8.5 ft) w,l,h

Weight: Shelter with all interior accessories (lanes, curtains, hoses, nozzles, and berm) preinstalled—121 kg (266 lb)
 Exterior Equipment—water heater 169 kg (370 lb)
 Solution Proportioning System—19 kg (42 lb)
 2 Light Kit—36 kg (80 lb)
 2 Sump Pump Kits—6 kg (13 lb)
 11 floor risers—85 kg (187 lb)

Air Pump—1.4 kg (3 lb)

Power Requirements: Shelter: 15 A for pumps and lights. Water heater: Diesel/kerosene/JP-8 with 30 L (8 gal) fuel cell. (Water heater produces the 15A to run pumps and lights and 12 GPM, 150 PSI with 440 000 BTUs.)

LOGISTICS

Portability: Easily transported as part of a trailer based system. Shelter transport cube is 160 cm x 93 cm x 81 cm (63 in x 37 in x 32 in) l,w,h

Consumables Required: Water

Maintenance Required: After each use: clean and allow to thoroughly dry

Maintenance Cost: Not specified

Use/Reuse: Can be cleaned and reused with minimal effort

Shelf Life: 20 yr

Storage Conditions: Not specified

Durability: Shelter durability tested at Aberdeen Military Testing Center. Frame successfully passes 10 lb/in² snow load testing, passes 65 mph sustained/75 mph gust wind testing, and passes 50 erection/strike timed durability testing.

Environmental Conditions: Can operate in any environmental conditions

Environmental Considerations: Not specified

Resources: Multi-person portable

Warranty: 3 yr from purchase date

SPECIAL PARAMETERS

Operator Skills Required: Less than 8 hr provided by manufacture

Operator Training Required: Less than 8 hr provided by manufacture

Training Available: Initial training and refresher training provided as long as Base-X gear is owned, 24/7/365 support provided in CONUS

Manuals Available: Manuals and CD

Support Equipment: Water heater, sump pump, solution proportioner, lighting, extension cord, hoses (hot, cold, gray water), air pump and hand sprayers—included in complete system

Applicable Regulations: No special DOT licensing needed to transport other than applicable state tags for trailer

GENERAL

Decontamination Shelters**Model:** 7030303CS—Ambulatory; 7030303CSM—Nonambulatory

Base-X, Inc.
 6051 North Lee Highway
 Fairfield, Virginia 24435
 800-969-8527 (Tel)
 540-377-5002 (Fax)
 sales@base-x.com
 Dan Gilbert
 dgilbert@base-x.com
 http://www.base-x.com

**Status:** The vendor has responded—9/6/2006**Category:** Shelter
Type: Shower system

Unit Cost: \$28.8K to \$32.2K
Availability: In stock
Current Users: Not specified

Description: Three Lane Decontamination System
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Designed for use in civil or military Major Incident Response (MIR) situations, our line of decontamination shelters uses the most advanced, patented folding frame technology. The patented locking hubs and telescoping legs supply superior strength and durability.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Currently Base-X does not provide decontaminant products for systems. Decon shelter systems are designed to use any solution chosen by responding unit.

Chemical Agents: Not applicable**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Water and/or solution

Capacity Throughput: Three wide lanes with three separate stations each. Nonambulatory has three overhead sprayers and conveyor included. Throughput completely dependant on type of agent and time needed to decon particular exposure. Determined on site.

Set-up Time: 5 min to 8 min with 2 personnel

PHYSICAL PARAMETERS

Size: 4.6 m x 4.6 m x 2.6 m (15 ft x 15 ft x 8.5 ft) w,l,h

Weight: Shelter with all interior accessories (lanes, curtains, hoses, nozzles, and berm) preinstalled—146 kg (322 lb)
 Exterior Equipment—water heater 169 kg (370 lb)
 Solution Proportioning System—19 kg (42 lb)
 3 Light Kit—54 kg (120 lb)
 3 Sump Pump Kits—8.8 kg (19.5 lb)
 18 floor risers—137 kg (301 lb)

Air Pump—1.4 kg (3 lb)

Power Requirements: Shelter: 15 A for pumps and lights. Water heater: Diesel/kerosene/JP-8 with 30 L (8 gal) fuel cell. (Water heater produces the 15A to run pumps and lights and 12 GPM, 150 PSI with 440 000 BTUs.)

LOGISTICS

Portability: Easily transported as part of a trailer based system. Shelter transport cube is 160 cm x 109 cm x 93 cm (63 in x 43 in x 37 in) l,w,h.

Consumables Required: Water

Maintenance Required: After each use: clean and allow to thoroughly dry

Maintenance Cost: Not specified

Use/Reuse: Can be cleaned and reused with minimal effort

Shelf Life: 20 yr

Storage Conditions: Not specified

Durability: Shelter durability tested at Aberdeen Military Testing Center. Frame successfully passes 10 lb/in² snow load testing, passes 65 mph sustained/75 mph gust wind testing, and passes 50 erection/strike timed durability testing.

Environmental Conditions: Can operate in any environmental conditions

Environmental Considerations: Not specified

Resources: Multi-person portable

Warranty: 3 yr from purchase date

SPECIAL PARAMETERS

Operator Skills Required: Less than 8 hr provided by manufacture

Operator Training Required: Less than 8 hr provided by manufacture

Training Available: Initial training and refresher training provided as long as Base-X gear is owned, 24/7/365 support provided in CONUS

Manuals Available: Manuals and CD

Support Equipment: Water heater, sump pump, solution proportioner, lighting, extension cord, hoses (hot, cold, gray water), air pump and hand sprayers—included in complete system

Applicable Regulations: No special DOT licensing needed to transport other than applicable state tags for trailer

GENERAL

Hygiene Shower Kits**Model:** 70H001 (2 Stall Hanging Shower); 70H002 (2 Stall Hanging Shower with Hot and Cold Plumbing)

Base-X, Inc.
 6051 North Lee Highway
 Fairfield, Virginia 24435
 800-969-8527 (Tel)
 540-377-5002 (Fax)
 sales@base-x.com
 Dan Gilbert
 dgilbert@base-x.com
 http://www.base-x.com

**Status:** The vendor has responded—9/6/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$1.45K to \$1.7K**Availability:** In stock**Current Users:** Not specified

Description: This two-door hygiene shower kit is designed to use inside our Base-X Shelters, or other tents. Its unique design and construction enables quick assembly, effective use, and easy maintenance. The two-individual shower unit can also be converted to one shower.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination**Application Notes:** Personnel Hygiene Kit**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Currently Base-X does not provide decontaminant products for systems. Decon shelter systems are designed to use any solution chosen by responding unit.

Chemical Agents: Not applicable**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Water and/or solution**Capacity Throughput:** Not specified**Set-up Time:** 1 min to 2 min with 1 person

PHYSICAL PARAMETERS

Size: 229 cm x 117 cm (90 in x 46 in)**Weight:** Not specified**Power Requirements:** Not specified

LOGISTICS

Portability: Single person portable**Consumables Required:** Water**Maintenance Required:** Not specified**Maintenance Cost:** Not specified**Use/Reuse:** Can be cleaned and reused with minimal effort**Shelf Life:** Not specified**Storage Conditions:** Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: 1 person

Warranty: 3 yr from purchase date

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: Initial training and refresher training provided as long as Base-X gear is owned, 24/7/365 support provided in CONUS

Manuals Available: Manuals

Support Equipment: Water Distribution Kit

Applicable Regulations: Not specified

GENERAL

Biological Decon Solution**Model:** PS-2; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com
Status: The vendor has responded—6/1/2006

Unit Cost: \$50/gal
Availability: In stock
Current Users: Available on request

Category: **Commercial Decontaminant****Type:** Liquid—H₂O₂**Description:** BA: treatment rate at 6 logs on B. anthracis in ~8 min. The process is much faster with the synergy of the PS and the UV light (6 logs on B. anthracis in ~1 s).**Decontamination Process:** Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Biological decontamination**Testing:** Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: BA**Chemical Agents:** Not applicable**Bio Agents:** BA**TIMs:**

- **High Hazard:** Attached
- **Medium Hazard:** Attached
- **Low Hazard:** Attached

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Proprietary solutions (hydrogen peroxide base)**Capacity Throughput:** Not specified**Set-up Time:** Not specified

PHYSICAL PARAMETERS

Size: 3.79 L (1 gal)**Weight:** 4.1 kg (9 lb)**Power Requirements:** Not applicable

LOGISTICS

Portability: Single person portability**Consumables Required:** Not applicable**Maintenance Required:** Not applicable**Maintenance Cost:** Not applicable**Use/Reuse:** Yes**Shelf Life:** 1 yr**Storage Conditions:** 13 °C to 27 °C (55 °F to 80 °F)**Durability:** Not specified

Environmental Conditions: MSDS available
Environmental Considerations: MSDS available
Resources: Not applicable
Warranty: Not applicable

SPECIAL PARAMETERS

Operator Skills Required: Not applicable
Operator Training Required: Not applicable
Training Available: Not applicable
Manuals Available: Manual and CD
Support Equipment: Class A suit minimum
Applicable Regulations: Not specified

GENERAL

Chemical Decon Solution

Model: PS-1; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com
Status: The vendor has responded—6/1/2006

Unit Cost: \$65/gal
Availability: In stock
Current Users: Available on request

Category: Commercial Decontaminant**Type:** Liquid—H₂O₂**Description:** CA: treatment rate at ~6 m²/min. Transfer efficiency is up to 85 %.**Decontamination Process:** Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Chemical decontamination**Testing:** Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CA**Chemical Agents:** CA**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Attached
- **Medium Hazard:** Attached
- **Low Hazard:** Attached

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Proprietary solutions (hydrogen peroxide base)**Capacity Throughput:** 1 armored personnel carrier per hour**Set-up Time:** 3 min, 1 technician

PHYSICAL PARAMETERS

Size: 3.79 L (1 gal)**Weight:** 4.1 kg (9 lb)**Power Requirements:** Not applicable

LOGISTICS

Portability: Single person portability**Consumables Required:** Not applicable**Maintenance Required:** Not applicable**Maintenance Cost:** Not applicable**Use/Reuse:** Yes**Shelf Life:** 1 yr**Storage Conditions:** 13 °C to 27 °C (55 °F to 80 °F)**Durability:** Not specified**Environmental Conditions:** MSDS available

Environmental Considerations: MSDS available

Resources: Not applicable

Warranty: Not applicable

SPECIAL PARAMETERS

Operator Skills Required: Not applicable

Operator Training Required: Not applicable

Training Available: Not applicable

Manuals Available: Manual and CD

Support Equipment: Class A suit minimum

Applicable Regulations: Not specified

GENERAL

Portable Decontamination System

Model: Model 111; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com



Status: The vendor has responded—6/1/2006

Category: Delivery
Type: Liquid—trailer mounted

Unit Cost: \$23.9K
Availability: 90 d
Current Users: Available on request

Description: Portable Decontamination System (Model 111)

- Portable system
- Deployable and operational in 5 min by 2 technicians
- Estimated casualties 600 per hour
- Fits in back of a pick-up truck
- Can Be stored in closet
- Transport to local incident
- Personal incident
- Military mortuary affairs
- Cost effective

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Personnel biological and chemical decontamination

Testing: Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** Attached
- **Medium Hazard:** Attached
- **Low Hazard:** Attached

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Soap and water, or chlorine 0.05 % delivered

Capacity Throughput: 600 casualties per hour

Set-up Time: 5 min, 2 technicians

PHYSICAL PARAMETERS

Size: 9.8 m x 21 m x 12 m (32 in x 69 in x 40 in) w,l,h

Weight: 204 kg (450 lb)

Power Requirements: 1800 W

LOGISTICS

Portability: 2 person portability
Consumables Required: Diesel fuel/decontamination solution
Maintenance Required: 1 h after each use
Maintenance Cost: \$1K yearly
Use/Reuse: Yes
Shelf Life: Not specified
Storage Conditions: 13 °C to 35 °C (55 °F to 95 °F)
Durability: Fireman proof
Environmental Conditions: EPA per run off
Environmental Considerations: EPA per run off
Resources: 2 technicians
Warranty: 1 yr parts and labor

SPECIAL PARAMETERS

Operator Skills Required: 3 h
Operator Training Required: 3 h
Training Available: Yes
Manuals Available: Manual and CD
Support Equipment: Class B suit minimum
Applicable Regulations: Stowable in pick-up truck

GENERAL

Portable Decontamination System**Model:** Model 101; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com

**Status:** The vendor has responded—6/1/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$12K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable Decontamination System (Model 101)

- Our smallest portable system
- Deployable and operational in 5 Min by 1 technician
- Estimated casualties 100 per hour
- Stowable in a pick-up truck
- Stores easily
- Transport to personal/localized incident
- Limited incident
- Easy on the budget

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination**Application Notes:** Personnel biological and chemical decontamination**Testing:** Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents**Chemical Agents:** CA**Bio Agents:** BA**TIMs:**

- **High Hazard:** Attached
- **Medium Hazard:** Attached
- **Low Hazard:** Attached

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Soap and water, or chlorine 0.05 % delivered**Capacity Throughput:** 100 casualties per hour**Set-up Time:** 5 min, 2 technicians

PHYSICAL PARAMETERS

Size: 0.81 m x 1.52 m x 1.22 m (32 in x 60 in x 48 in) w,l,h**Weight:** 136 kg (300 lb)**Power Requirements:** 1800 W

LOGISTICS

Portability: 2 person portability
Consumables Required: Diesel fuel/decontamination solution
Maintenance Required: 1 h after each use
Maintenance Cost: \$1K yearly
Use/Reuse: Yes
Shelf Life: Not specified
Storage Conditions: 55 °F to 95 °F
Durability: Fireman proof
Environmental Conditions: EPA per run off
Environmental Considerations: EPA per run off
Resources: 1 technician
Warranty: 1 yr parts and labor

SPECIAL PARAMETERS

Operator Skills Required: 3 h
Operator Training Required: 3 h
Training Available: Yes
Manuals Available: Manual and CD
Support Equipment: Class B suit minimum
Applicable Regulations: Stowable in pick-up truck

GENERAL

Modesty Shelter (Folding Frame)
Model: GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com



Status: The vendor has responded—6/1/2006

Category: Shelter
Type: Shower system

Unit Cost: \$13.9K
Availability: 90 d
Current Users: Available on request

Description: Modesty shelters (inflatable)

- Noncorrosive light-weight vinyl
- Gowning/de-gowning ports
- Self-deploying boom system
- Shower spray heads
- Spray wands
- Dividing panel separates decon from rinse
- Inflation device
- 12 V vapor-proof lighting

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Personnel biological and chemical decontamination

Testing: Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Soap and water, or chlorine 0.05 % delivered

Capacity Throughput: 600 casualties per hour

Set-up Time: 8 min, 4 technicians

PHYSICAL PARAMETERS

Size: 5.5 m x 4.6 m x 3.7 m (18 ft x 15 ft x 12 ft) w,l,h

Weight: 125 kg (275 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Standoff unit
Consumables Required: Not specified
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Yes
Shelf Life: Not specified
Storage Conditions: 13 °C to 35 °C (55 °F to 95 °F)
Durability: Fireman proof
Environmental Conditions: EPA per run off
Environmental Considerations: EPA per run off
Resources: 4 technicians
Warranty: 1 yr parts and labor

SPECIAL PARAMETERS

Operator Skills Required: 3 h
Operator Training Required: 3 h
Training Available: Yes
Manuals Available: Manual and CD
Support Equipment: Class B suit minimum
Applicable Regulations: Stowable in pick-up truck

GENERAL

Modesty Shelter (Inflatable)**Model:** GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com

**Status:** The vendor has responded—6/1/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$12.9K**Availability:** 90 d**Current Users:** Available on request**Description:** Modesty shelters (inflatable)

- Noncorrosive light-weight vinyl
- Gowning/de-gowning ports
- Self-deploying boom system
- Shower spray heads
- Spray wands
- Dividing panel separates decon from rinse
- Inflation device
- 12 V vapor-proof lighting

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination**Application Notes:** Personnel biological and chemical decontamination**Testing:** Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents**Chemical Agents:** CA**Bio Agents:** BA**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Soap and water, or chlorine 0.05 % delivered**Capacity Throughput:** 600 casualties per hour**Set-up Time:** 8 min, 1 technicians

PHYSICAL PARAMETERS

Size: 4 m x 4.6 m x 3.4 m (13 ft x 15 ft x 11 ft) w,l,h**Weight:** 45.4 kg (100 lb)**Power Requirements:** Not applicable

LOGISTICS

Portability: Standoff unit
Consumables Required: Not specified
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Yes
Shelf Life: Not specified
Storage Conditions: 13 °C to 35 °C (55 °F to 95 °F)
Durability: Fireman proof
Environmental Conditions: EPA per run off
Environmental Considerations: EPA per run off
Resources: 4 technicians
Warranty: 1 yr parts and labor

SPECIAL PARAMETERS

Operator Skills Required: 3 h
Operator Training Required: 3 h
Training Available: Yes
Manuals Available: Manual and CD
Support Equipment: Class B suit minimum
Applicable Regulations: Stowable in pick-up truck

GENERAL

Modular or Inflatable Decon Habitat**Model:** Model 1420; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com

**Status:** The vendor has responded—6/1/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$1069K**Availability:** 90 d**Current Users:** Available on request**Description:** Model 1420:

- Fiberglass building or inflatable modesty shelter
- Inflatable/deployable and operational in 10 min by 4 technicians
- Fiberglass, virtually “plug and play”
- Estimated casualties 1200/h
- Three lanes
- Men, women/children
- Automated injection system
- Nonambulatory decon roller system
- UV germicidal irradiation

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination**Application Notes:** Personnel biological and chemical decontamination**Testing:** Available on request

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents**Chemical Agents:** CA**Bio Agents:** BA**TIMs:**

- **High Hazard:** Attached
- **Medium Hazard:** Attached
- **Low Hazard:** Attached

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Soap and water, or chlorine 0.05 % delivered**Capacity Throughput:** 600 casualties per hour**Set-up Time:** 10 min, 4 technicians

PHYSICAL PARAMETERS

Size: 2.6 m x 8.4 m x 2.6 m (102 in x 330 in x 96 in) w,l,h**Weight:** 2948 kg (6500 lb)**Power Requirements:** 4500 W

LOGISTICS

Portability: Standoff unit

Consumables Required: Diesel fuel/ decontamination solution

Maintenance Required: 1 h after each use

Maintenance Cost: \$1.5K yearly

Use/Reuse: Yes

Shelf Life: Not specified

Storage Conditions: 13 °C to 35 °C (55 °F to 95 °F)

Durability: Fireman proof

Environmental Conditions: EPA per run off

Environmental Considerations: EPA per run off

Resources: 4 technicians

Warranty: 1 yr parts and labor

SPECIAL PARAMETERS

Operator Skills Required: 4 h

Operator Training Required: 4 h

Training Available: Yes

Manuals Available: Manual and CD

Support Equipment: Class B suit minimum

Applicable Regulations: Towable

GENERAL

Electrostatic Decontamination System (EDS)

Model: EDS

Clean Earth Technologies, LLC
 13378 Lakefront Drive
 Earth City, Missouri 63045
 Dr. Joan Stader
 314-222-4640 (Tel) ext 109
 314-222-4650 (Fax)
 jstader@cleanearthtech.com
 http://www.cleanearthtech.com



Status: The vendor has responded—6/22/2006

Category: Delivery

Type: Gas—Generation surface and aerosol

Unit Cost: \$7.4K (MSRP)

Availability: Manufactured on demand. LRIP units (version 4 and 5) available now.

Current Users: Not specified

Description: Delivery pack, electrostatic spray wand, and connectors. EDS is a lightweight, manportable system (patents pending) for rapid surface decontamination of CB agents. Treatment rate at >6m²/min. Transfer Efficiency is up to 85 %. Biological decontamination is performed by spraying a thin layer (~25 µm) of liquid photosensitizer (PS) solution, Peridox, on the surface followed by the application of intense UV light. Electrostatic spraying delivers the decontaminant solution to critical hidden areas, improves efficiency, and counters side winds.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Includes sensitive equipment, optics, and suited personnel. EDS can be scaled and built to user specifications.

- Larger reservoirs, longer hoses, and other configurations are possible.
- Shoulder carried prototype developed for U.S. Special Forces in 120 d.

Testing: Tested by ECBC, Battelle, MRI, ATS Labs, and Microbiotest

Neutralization of HD, VX, and G-agents is greater than 6 logs; kills B. anthrax spores to level of detection (>6 logs)

Independent laboratories have found EDS to be highly effective in neutralizing biological and chemical warfare agents (and simulants) including: anthrax, nerve agents (GB and VX), and mustard (HD).

Validation tests:

Biological— ~25 mL of BDS of surface area

Chemical—agents were decontaminated @ 30 mL solution per gram of agent

OPERATIONAL PARAMETERS

Materials Decontaminated: CAs, BAs, and TICs

Chemical Agents: GB, VX, and HD

Bio Agents: Anthrax spores

TIMs:

- **High Hazard:** Carbon disulfide, chlorine, ethylene oxide, fluorine, formaldehyde, hydrogen bromide, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen sulfide, nitric acid (fuming), sulfur dioxide, and sulfuric acid
- **Medium Hazard:** Acetone cyanohydrin, acrolein, acrylonitrile, allylamine, allyl chlorocarbonate, chloroacetone, 1,2-dimethylhydrazine, methyl hydrazine, methyl mercaptan, and n-octyl mercaptan
- **Low Hazard:** Allyl isothiocyanate, bromine, chloroacetaldehyde, cyanogen chloride, ethyl chlorothioformate, ethyl phosphonothioic dichloride, ethyl phosphonic dichloride, ethyleneimine, hydrogen iodide, isopropyl isocyanate, n-butyl chloroformate, nitric oxide, and tert-butyl isocyanate

Rad/Nuc Materials: Not applicable

Decontamination Solutions: CET's Chemical Decontamination Solution (CAs); CET's PERIDOX (BAs)

Capacity Throughput: Treatment rate ~6 sq m/min (7 yd²)

1 armored personnel carrier per hour

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 75 cm x 33 cm x 38 cm (29.5 in x 13 in x 15 in) h, l, w

Weight: 23.4 kg (51.5 lb)

Power Requirements: 12 V dc

LOGISTICS

Portability: Man-portable

Consumables Required: 12 V dc battery, CDS (chemical decontaminant), PERIDOX (biological decontaminant concentrate), water, nitrogen cylinder, and Hazmat disposal bag

Maintenance Required: Every 72 h replace sprayer battery, hose, and filter; every 4000 h replace spray head

Maintenance Cost: ~\$450/yr of sporadic use (includes decontaminant)

Use/Reuse: EDS hardware can be cleaned and reused with minimal effort

Shelf Life: EDS hardware >5 yr; decontaminant 2 yr

Storage Conditions: Below 55 °C (131 °F)

Durability: Passed ruggedness tests, including curb and stair impact for >30 flights; simulated use for 12 x 4 d; and drop tests 0.6 m (2 ft)

Environmental Conditions: Temperatures from - 7 °C to 49 °C (20 °F to 120 °F), <100 % humidity

Environmental Considerations: The decontaminant avoids detrimental material effects and produces no persistent toxic by-products

Resources: 1 man operation

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <1 h

Operator Training Required: <1 h

Training Available: <8 h training for the trainers provided by manufacturer

Manuals Available: Users manual

Support Equipment: Not specified

Applicable Regulations: EPA Registration # 81073-1

EDS hardware: No regulations

Decon solutions: DOT-approved containers for ground and sea and IATA regulations for air transport

- Bio decon solution: 1 L (0.26 gal) containers (max), 5 containers per pkg, unlimited pkg per carrier
- Chem decon solution: 2.5L (0.66 gal) containers (max), 20 containers per package, unlimited packages per carrier

GENERAL

Electrostatic Decontamination System

Model: GenV EDS

Clean Earth Technologies, LLC
 13378 Lakefront Drive
 Earth City, Missouri 63045
 Dr. Joan Stader
 314-222-4640 (Tel) ext 109
 314-222-4650 (Fax)
 jstader@cleanearthtech.com
 http://www.cleanearthtech.com



Status: The vendor has responded—6/22/2006

Category: Delivery

Type: Gas—Generation surface and aerosol

Unit Cost: \$40.5K (MSRP)

Availability: Manufactured on demand

Current Users: General Dynamics LS, Aaron Johnson, 586-825-5831

Description: The EDS GenV comprises 2 units: 1) the Activation Unit (Activation Pack, UV light wand and umbilicus) and 2) the Delivery Unit (delivery pack, electrostatic spray wand, and connectors). Treatment rate at $>6 \text{ m}^2/\text{min}$. Transfer Efficiency is up to 85 %.

Biological decontamination is performed by spraying a thin layer ($\sim 25 \mu\text{m}$) of liquid photosensitizer (PS) solution, Peridox, on the surface followed by the application of intense UV light. Electrostatic spraying delivers the decontaminant solution to critical hidden areas, improves efficiency, and counters side winds.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Includes sensitive equipment, optics, and suited personnel. EDS can be scaled and built to user specifications.

- Larger reservoirs, longer hoses, and other configurations are possible.
- Shoulder carried prototype developed for U.S. Special Forces in 120 d.

Testing: Tested by ECBC, Battelle, MRI, ATS Labs, and Microbiotest

Neutralization of HD, VX, and G-agents is greater than 6 logs; kills B. anthrax spores to level of detection (>6 logs)

Independent laboratories have found EDS to be highly effective in neutralizing CB agents (and simulants) including: anthrax, nerve agents (GB and VX), and mustard (HD).

Validation tests:

Biological— $\sim 25 \text{ mL}$ of BDS of surface area

Chemical—agents were decontaminated @ 30 mL solution per gram of agent

OPERATIONAL PARAMETERS

Materials Decontaminated: CAs, BAs, and TICs

Chemical Agents: GB, VX, and HD

Bio Agents: Anthrax spores

TIMs:

- **High Hazard:** Carbon disulfide, chlorine, ethylene oxide, fluorine, formaldehyde, hydrogen bromide, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen sulfide, nitric acid (fuming), sulfur dioxide, and sulfuric acid
- **Medium Hazard:** Acetone cyanohydrin, acrolein, acrylonitrile, allylamine, allyl chlorocarbonate, chloroacetone, 1,2-dimethylhydrazine, methyl hydrazine, methyl mercaptan, and n-octyl mercaptan
- **Low Hazard:** Allyl isothiocyanate, bromine, chloroacetaldehyde, cyanogen chloride, ethyl chlorothioformate, ethyl phosphonothioic dichloride, ethyl phosphonic dichloride, ethyleneimine, hydrogen iodide, isopropyl isocyanate, n-butyl chloroformate, nitric oxide, and tert-butyl isocyanate

Rad/Nuc Materials: Not applicable

Decontamination Solutions: CET's Chemical Decontamination Solution (CAs); CET's PERIDOX (BAs)

Capacity Throughput: Treatment rate ~6 m²/min (7 yd²)

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 91 cm x 122 cm x 58 cm (36 in x 48 in x 23 in) h, l, w

Weight: 62.8 kg (138.4 lb)

Power Requirements: 120 V ac, 60 Hz, 12 V dc

LOGISTICS

Portability: Cart-mounted (1 man pull, 2 man lift)

Consumables Required: 12 V dc battery, CDS (chemical decontaminant), PERIDOX (biological decontaminant concentrate), water, nitrogen cylinder, light wand cleaning kit, and Hazmat disposal bag

Maintenance Required: Every 72 h clean light wand, and replace light wand bulb and filter, sprayer battery, and hose and filter; every 4000 h replace spray head, light wand fan, and heat exchanger fans

Maintenance Cost: ~\$900/year of sporadic use (includes decontaminant)

Use/Reuse: EDS hardware can be cleaned and reused with minimal effort

Shelf Life: EDS hardware >5 yr; decontaminant 2 yr

Storage Conditions: Below 55 °C (131 °F)

Durability: Passed ruggedness tests, including curb and stair impact for >30 flights; simulated use for 12 x 4 d; and drop tests 0.6 m (2 ft)

Environmental Conditions: Temperatures from - 7 °C to 49 °C (20 °F to 120 °F), <100 % humidity

Environmental Considerations: EDS does not generate hazardous waste

Resources: 1 man to 2 man operation

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <1 h

Operator Training Required: <1 h

Training Available: <8 h training for the trainers provided by manufacturer

Manuals Available: Users manual

Support Equipment: Not specified

Applicable Regulations: EDS hardware: No regulations

Decon solutions: DOT-approved containers for ground and sea and IATA regulations for air transport

- Bio decon solution: 1 L (0.26 gal) containers (max), 5 containers per pkg, unlimited pkg per carrier
- Chem decon solution: 2.5 L (0.66 gal) containers (max), 20 containers per package, unlimited packages per carrier

GENERAL

Portable Chemical/Radiological Simulant Training Kit

Model: Standard

Clean Earth Technologies, LLC
 13378 Lakefront Drive
 Earth City, Missouri 63045
 Dr. Joan Stader
 314-222-4640 (Tel) ext 109
 314-222-4650 (Fax)
 jstader@cleanearthtech.com
 http://www.cleanearthtech.com



Status: The vendor has responded—6/22/2006

Category: Accessory
Type: Kit (simulants)

Unit Cost: \$500 (estimated, goes on sale Fall 2006)

Availability: Manufactured on demand

Current Users: Not specified

Description: G-agent, HD, and VX simulants, radiological "dirty bomb" fallout simulant, LED UV flashlight, Pelican case, users manual, flashcards, and training DVD; PID optional

Decontamination Process: Not applicable

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Nontoxic simulants may be used on human skin. CB decontamination simulation training materials.

Testing: Currently in beta testing stage. Chemical simulants mimic the vapor pressure, viscosity, and solubility of the agents.

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not applicable

Capacity Throughput: ~56 m² (600 ft²) per simulant

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 48 cm x 38 cm x 15 cm (19 in x 15 in x 6 in) h, l, w

Weight: 7.5 kg (16.5 lb)

Power Requirements: 3 alkaline D batteries

LOGISTICS

Portability: Man-portable

Consumables Required: Chemical simulants, radiological simulant, and alkaline D batteries

Maintenance Required: Replace consumables

Maintenance Cost: ~\$0 to 200/yr of sporadic use

Use/Reuse: Can be replenished and reused

Shelf Life: 2 yr

Storage Conditions: Below 55 °C (131 °F)

Durability: Moderately rugged

Environmental Conditions: Temperatures from - 7 °C to 49 °C (20 °F to 120 °F), <100 % humidity

Environmental Considerations: Environmentally friendly

Resources: 1 trainer operation

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <1 h

Operator Training Required: <1 h

Training Available: <8 h training for the trainers provided by manufacturer

Manuals Available: Users manual

Support Equipment: Not specified

Applicable Regulations: None

GENERAL

Cryogenesis Booth

Model: 125 ASM; 125 ASG

Cryogenesis
2140 Scranton Rd.
Cleveland, Ohio 44113
216-696-8797 (Tel)
216-696-8794 (Fax)
jbecker@cryogenesis-usa.com
<http://www.cryogenesis-usa.com>



Status: The vendor has responded—7/17/2006

Category: Delivery
Type: Gas—CO₂

Unit Cost: \$16K—125 ASM

\$17.5K—125 ASG

Terms within US: 50 % with P.O 30 % upon shipment, balance 30 d after receiving shipment.

Terms out of the country: L/C required

FOB Cleveland, Ohio USA.

Availability: Delivery 3 wk to 4 wk for standard and Minnie 125 ASM/ASG

Current Users: Over 50 domestic and international companies use Cryogenesis products

Description: Note: All models are now using Cryogenesis patented pressurized hopper systems. Once the dry ice enters the hopper it no longer is exposed to atmospheric conditions. One air motor drives the system. Model 125ASM (air and dry ice control, single hose, and metering valve) is the standard unit that uses rice size dry ice. This model uses rice size dry ice (1/8 in diameter) or nugget size dry ice (3/4 in diameter). Model ASG uses 3/4 in nugget size dry ice. Model 125 ASG (air and dry ice control, single hose, and grinding valve) is a standard unit that uses rice or nugget size dry ice. This model may be designed per customer request as a permanent unit with a fully insulated hopper that can handle two guns for a robotic application. This setup would allow robots to do their cleaning once every hour for 5 min 24 h a day with no down time.

Model 125ASG/ASM is a heavy duty pressurized single hose system, comes complete with 7.6 m (25 ft) of 1 1/4 in air supply hose, 7.6 m (25 ft) of blasting hose, and one hand gun and trigger assembly. With standard gun, air flow is 120 cfm @ 80 psi. Model ASM uses only rice size dry ice. (Unit is patent pending.)

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Cryogenesis is a manufacture of the CO₂ blasting machine. We also can providing a cleaning service upon request.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: See applications

Chemical Agents: See applications

Bio Agents: See applications

TIMs:

- **High Hazard:** See applications
- **Medium Hazard:** See applications
- **Low Hazard:** See applications

Rad/Nuc Materials: See applications

Decontamination Solutions: Dry ice

Capacity Throughput: 125 ASM—hopper capacity uninsulated—68 kg (150 lb)

125 ASG—hopper capacity uninsulated—68 kg (150 lb)

Blast pressure range for all models—adjustable 18 kg to 57 kg (40 lb to 125 lb)

Note: Nozzles have been developed to clean areas 3.2 cm (1¼ in) wide to as large as 46 cm (18 in) wide

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 125 ASM—61 cm x 102 cm x 132 cm (24 in x 40 in x 52 in); 125 ASG—61 cm x 91 cm x 107 cm (24 in x 36 in x 42 in)

Weight: 125 ASM—113 kg (250 lb); 125 ASG—113 kg (250 lb)

Power Requirements: 125 ASM—High Torque Air Motor 0.39/0.79 hp

125 ASG—High Torque Air Motor 0.39/0.79 hp

Personal will not be subjected to electrical hazards because it's fully pneumatic

LOGISTICS

Portability: Portability, and light weight at only 113 kg (250 lb)

Consumables Required: Dry ice pellets

Maintenance Required: Because of the open design of the equipment it makes it easy for maintenance personnel to service

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: SS Pressure Vessel, Frame Aluminum

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Warranty 1 yr on manufactured parts by Cryogenesis. Physical appearance is subject to change.

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: All units are ASME Certified Pressure Vessel. (American Society of Metallurgical Engineers)

GENERAL

Cryogenesis Booth

Model: Minnie 125 MASM

Cryogenesis
2140 Scranton Rd.
Cleveland, Ohio 44113
216-696-8797 (Tel)
216-696-8794 (Fax)
jbecker@cryogenesis-usa.com
<http://www.cryogenesis-usa.com>



Status: The vendor has responded—7/17/2006

Category: Delivery
Type: Gas—CO₂

Unit Cost: \$12.9K—Minnie 125 MASM

Terms within US: 50 % with P.O 30 % upon shipment, balance 30 d after receiving shipment.

Terms out of the country: L/C required. FOB Cleveland, Ohio USA.

Availability: Delivery 3 wk to 4 wk for standard and minnie 125 ASM/ASG.

Current Users: Over 50 domestic and international companies use Cryogenesis products

Description: Note: All models are now using Cryogenesis patented pressurized hopper systems. Once the dry ice enters the hopper it no longer is exposed to atmospheric conditions. One air motor drives the system. Minnie unit is a smaller version of the 125 ASM, with a hopper capacity of 27 kg (60 lb). Same guns, air flow, dry ice and performance.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Cryogenesis is a manufacture of the CO₂ blasting machine. We also can providing a cleaning service upon request.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: See applications

Chemical Agents: See applications

Bio Agents: See applications

TIMs:

- **High Hazard:** See applications
- **Medium Hazard:** See applications
- **Low Hazard:** See applications

Rad/Nuc Materials: See applications

Decontamination Solutions: Dry ice

Capacity Throughput: Minnie 125 MASM—Hopper capacity uninsulated—27 kg (60 lb)

Blast pressure range for all models—Adjustable 18 kg to 57 kg (40 lb to 125 lb)

Note: Nozzles have been developed to clean areas 3.2 cm (1¼ in) wide to as large as 45 cm (18 in) wide

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Minnie 125 MASM—50.8 cm x 68.6 cm x 91.4 cm (20 in x 27 in x 36 in)

Weight: Minnie 125 MASM—90.7 kg (200 lb)

Power Requirements: Minnie 125 MASM—High Torque Air Motor 0.39 hp

You will not be subjecting your personal to any electrical hazards because it's fully pneumatic

LOGISTICS

Portability: Portability, and light weight at only 91 kg (200 lb)

Consumables Required: Dry ice pellets

Maintenance Required: Because of the open design of the equipment it makes it easy for maintenance personnel to service

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: SS Pressure Vessel, Frame Aluminum

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Warranty 1 yr on manufactured parts by Cryogenesis. Physical appearance is subject to change.

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: All units are ASME Certified Pressure Vessel. (American Society of Metallurgical Engineers)

GENERAL

Exterm
Model: 6 g

CSI ClorDiSys Solutions, Inc.
PO Box 549
Lebanon, New Jersey 08833-0138
908-236-4100 (Tel)
908-236-2222 (Fax)
Paul Lorcheim
paullorcheim@clordisys.com
<http://www.clordisys.com/>



Status: The vendor has responded—7/18/2006

Category: **Commercial Decontaminant**
Type: Liquid

Unit Cost: \$10 per 6 g tablet with quantity discounts available

Availability: Exterm is stocked and ready for shipment

Current Users: Furnished upon interest

Description: Exterm is a revolutionary, high level, broad spectrum disinfectant and sterilizing agent that works quickly and effectively. It is reasonably priced, easily stored, very powerful, and most importantly, effective against many organisms.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Exterm is used for hard surface sanitization and sterilization

Testing: Exterm is registered with the US EPA as a sterilizing agent. The label details all of the organisms that it has been validated to be effective against. Exterm is presently being tested on new organisms.

OPERATIONAL PARAMETERS

Materials Decontaminated: See EPA registered label

Chemical Agents: Testing not performed by ClorDiSys but chlorine dioxide can break down many CAs

Bio Agents: Staphylococcus aureus, Hantavirus, Sendai, Coronairus (SDA), HIV, Norwalk virus, Clostridium sporogenes, Bacillus subtilis

TIMs:

- **High Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs
- **Medium Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs
- **Low Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs

Rad/Nuc Materials: No

Decontamination Solutions: Exterm tablet and water produces a chlorine dioxide solution

Capacity Throughput: One 6 g (0.21 oz) Exterm tablet produces a 1 gal solution of 100 ppm chlorine dioxide

Set-up Time: It only takes a few minutes to dissolve in water

PHYSICAL PARAMETERS

Size: One 6 g Exterm tablet is the size of a nickel coin

1.5 g (0.05 oz), 6 g (0.21 oz), 30 g (1.1 oz), and 150 g (5.3 oz) sizes are available

Weight: 6 g (0.21 oz)

Power Requirements: None

LOGISTICS

Portability: One 6 g 0.2 oz) Exterm tablet is the size of a nickel coin

Consumables Required: Exterm tablet and water

Maintenance Required: None

Maintenance Cost: None
Use/Reuse: No
Shelf Life: Indefinite unless foil packet is breached
Storage Conditions: Any
Durability: Good
Environmental Conditions: Common environmental conditions
Environmental Considerations: None
Resources: Nothing special
Warranty: Not applicable

SPECIAL PARAMETERS

Operator Skills Required: Only minutes of training required
Operator Training Required: Only minutes of training required
Training Available: Training is available
Manuals Available: Instructions are on the included label
Support Equipment: None required
Applicable Regulations: MSDS sheets show safety precautions needed. See IATA guidelines for 5.1 oxidizers.

GENERAL

Minidox

Model: Minidox-M

CSI ClorDiSys Solutions, Inc.
 PO Box 549
 Lebanon, New Jersey 08833-0138
 908-236-4100 (Tel)
 908-236-2222 (Fax)
 Paul Lorcheim
 paullorcheim@clordisys.com
 http://www.clordisys.com/



Status: The vendor has responded—7/20/2006

Category: Commercial Decontaminant
Type: Gas—ClO₂

Unit Cost: \$75

Availability: In stock

Current Users: The Minidox-M Decontamination System is commercially available and used in the following industries: animal research facilities, pharmaceutical manufacturing facilities, Health Canada, the U.S. EPA, the U.S. Army. References can be provided upon request.

Description: The Minidox-M Decontamination System is a basic chlorine dioxide gas generation system designed for use in any animal research facility, pharmaceutical, manufacturing, laboratory, or research setting. It provides a rapid and highly effective method to decontaminate a target chamber up to 1699 m³ (60 000 ft³). The system features a sophisticated sterilent concentration monitoring system to assure a tightly controlled decontamination process. The target can be any chamber such as an isolator (sterility test, filling line, containment...), pass through, processing tank or vessel, clean room, Lyophilizer, etc. The Minidox Decontamination System is portable in design and easily connected to various targets. The process is easy to validate due to the repeatable cycle, tight process control, and its highly accurate sterilent monitoring system. An optional steam inject module delivers steam to raise relative humidity to within a specified range.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Open areas, confined spaces, building materials, and sensitive items

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Chlorine dioxide gas can destroy most CAs, BAs, and TIMs

Chemical Agents: Testing not performed by ClorDiSys but chlorine dioxide can break down many CAs

Bio Agents: Our chlorine dioxide gas process is registered with the U.S. EPA as a sterilent, which, by definition, kills everything. Some specific organisms are: Hantavirus, Sendai, Coronairus (SDA), HIV, Norwalk virus, Clostridium sporogenes, Bacillus subtilis, Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella cholerasuis, Mycobacterium smegmatis, Bacillus pumilus, Bacillus stearothermophilus, Aspergillus niger, Trychophyton mentagrophytes, Candida albicans, Polio Type II (nonlipid), Herpes simplex Type I (lipid), and Parvo virus

TIMs:

- **High Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs
- **Medium Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs
- **Low Hazard:** Testing not performed by ClorDiSys but chlorine dioxide can break down many TIMs

Rad/Nuc Materials: No

Decontamination Solutions: Chlorine dioxide gas

Capacity Throughput: Not specified

Set-up Time: Variable

PHYSICAL PARAMETERS

Size: 76 cm x 142 cm x 61 cm (30 in x 56 in x 24 in) w,h,d

Weight: 136 kg (300 lb)

Power Requirements: 100 V ac to 240 V ac, 5 amp, single phase

LOGISTICS

Portability: Mobile

Consumables Required: Compressed 98 % nitrogen 2 % chlorine gas cylinders; ClorDiSys CD cartridges

Maintenance Required: Yearly preventive maintenance inspection and calibration

Maintenance Cost: Monthly (if requested) at \$2K per mo. This is not typically required.

Use/Reuse: No replacement necessary. The decontamination equipment can be cleaned and reused with little effort.

Shelf Life: Apparatus: over 5 yr, consumables replenished as needed

Storage Conditions: No special storage conditions

Durability: Equipment is industrial design using industrial components for durability

Environmental Conditions: No restrictions for the equipment

Environmental Considerations: No special environmental considerations

Resources: 1 trained operator

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <16 h provided by the manufacturer

Operator Training Required: <16 h provided by the manufacturer

Training Available: Safety training and operations training

Manuals Available: Systems Operation Manual details how to Operate the Minidox-M, how the Minidox-M functions, and provides troubleshooting info as well as safety info

Support Equipment: Everything is included

Applicable Regulations: Decontamination is regulated by the U.S. EPA. The process is registered with the U.S. EPA as a sterilizer. See IATA guidelines for 5.1 oxidizers.

GENERAL

Decon Privacy Corridor System

Model: HMK1300A

DQE
 8112 Woodland Dr
 Indianapolis, Indiana 46278
 800-355-4628 (Tel)
 317-295-9822 (Fax)
 info@dqeready.com
 Tony Baumgartner
 tbaum@dqeready.com
 http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Shelter
Type: Shower system

Unit Cost: \$3.15K to \$3.25K
Availability: In stock
Current Users: Not specified

Description: The addition of a tailored, heavy-duty enclosure creates a system of three private chambers for each stage in the decontamination process

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Patients disrobe and prepare for showering in stall one, shower in stall two, then proceed to stall three to dry off, don patient gown and prepare for further treatment or transport

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: 2 trained responders, 3 min to 4 min

PHYSICAL PARAMETERS

Size: Assembled—3.7 m x 1.2 m x 2.1 m (144 in x 48 in x 84 in); stored—188 cm x 22.9 cm x 22.9 mm (74 in x 9 in x 9 in)

Weight: 29.9 kg (65 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Decono Shower
Model: HM2000

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Shelter
Type: Shower stand

Unit Cost: \$375
Availability: In stock
Current Users: Not specified

Description: A cost-effective, ultra-light alternative to full-size showers, designed for limited-space, tactical or field applications. The Decono shower includes just five parts, but is constructed with the same high-quality workmanship and materials as all DQE systems. Top shower head can be used independently or together with lower shower head to provide thorough decontamination.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified
Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: 1 trained responder less than 2 min

PHYSICAL PARAMETERS

Size: Assembled—2.2 m x 0.69 m x 1.42 m (87 in x 27 in x 56 in); unassembled—30.5 cm x 56 cm x 104 cm (12 in x 22 in x 41 in)

Weight: 7.26 kg (16 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Vinyl bags

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

MASCAS Decon Shower System

Model: HMK4101

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Shelter

Type: Shower stand

Unit Cost: \$3.9K

Availability: In stock

Current Users: Not specified

Description: Mass casualty incidents require fast and efficient response. The MASCAS Shower can be set up quickly and easily expanded to decontaminate up to six individuals simultaneously using four shower stalls and two hand-held sprayers. Divider curtains separate individual stalls for privacy, and the system is designed for seamless integration with existing equipment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: 2 trained responders 5 min to 6 min

PHYSICAL PARAMETERS

Size: Assembled—3.05 m x 0.91 m x 2.13 m (120 in x 36 in x 84 in); unassembled—2.21 m x 0.89 m x 0.66 m (87 in x 35 in x 26 in)

Weight: 81.6 kg (180 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

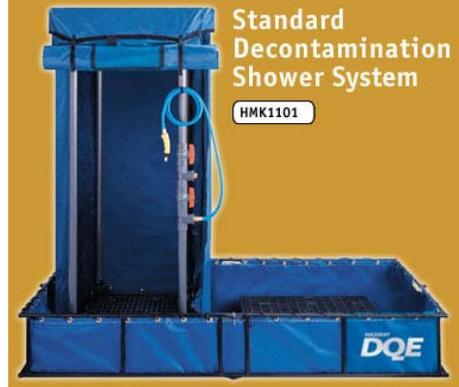
Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Standard Decontamination Shower Systems

Model: HMK1101S; HMK1101A

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Shelter
Type: Shower stand and tent

Unit Cost: \$2.24K to \$2.34K
Availability: In stock
Current Users: Not specified

Description: HMK1101 Standard Decontamination System is the industry's leading stand-alone solution, offering quick set-up, victim privacy, thorough decontamination and easy clean up. This shower can be configured to accommodate fully-, semi- and even nonambulatory victims.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: 2 people, 3 min to 4 min

PHYSICAL PARAMETERS

Size: Assembled—1.1 m x 2.2 m x 0.86 m (42 in x 86 in x 34 in); disassembled—1.9 m x 0.69 m x 0.69 m (74 in x 27 in x 27 in)

Weight: 43.1 kg (95 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Easy to carry vinyl bags

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Quick Response Shower Systems

Model: HMK3101S; HMK3101A

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Shelter

Type: Shower stand

Unit Cost: \$1.28K to \$1.38K

Availability: In stock

Current Users: Not specified

Description: Designed for field response, the Quick Response Shower is durably constructed to withstand frequent training, and compact enough to fit in a portable carry bag. The system includes a compact collection pool and elevation grid, sized right for easy transport and use.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: One trained responder 2 min to 3 min

PHYSICAL PARAMETERS

Size: Assembled—1.1 m x 1.2 m x 2.3 m (43.2 in x 46.8 in x 88.8 in); unassembled—1.2 m x 0.4 m x 0.2 m (49 in x 15.5 in x 9.5 in)

Weight: 20.4 kg (45 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Decon Wand
Model: HM6006

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Support (expansion)

Unit Cost: \$65
Availability: In stock
Current Users: Not specified

Description: The perfect accessory to easily expand your existing system, or use alone for small-scale decon procedures. Simply connect this hand-held device to a standard garden hose and you're ready to begin. Wand comes in two pieces for compact storage, and assembles with quick-connect coupling. Valve allows for shutoff and water flow adjustment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: 30 s

PHYSICAL PARAMETERS

Size: Assembled—113 cm x 15 cm x 6.4 cm (44.5 in x 6 in x 2.5 in); unassembled—64 cm x 15 cm x 6.4 cm (25 in x 6 in x 2.5 in)

Weight: 1.36 kg (3 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Decon-in-a-Bag
Model: HM6000

DQE
 8112 Woodland Dr
 Indianapolis, Indiana 46278
 800-355-4628 (Tel)
 317-295-9822 (Fax)
 info@dqeready.com
 Tony Baumgartner
 tbaum@dqeready.com
 http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Kit (portable bag)

Unit Cost: \$298
Availability: In stock
Current Users: Not specified

Description: Everything you need to perform gross field decontamination in one convenient carry bag. Ideal for responders and facilities with limited HazMat resources (law enforcement, EMS and security services, public health clinics, schools, and urgent care centers). Each kit contains all the necessary equipment for simple, yet effective decontamination.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified
Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified
Chemical Agents: Not specified
Bio Agents: Not specified
TIMs:
 • **High Hazard:** Not specified
 • **Medium Hazard:** Not specified
 • **Low Hazard:** Not specified
Rad/Nuc Materials: Not specified
Decontamination Solutions: Water
Capacity Throughput: Not specified
Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified
Weight: 5.44 kg (12 lb)
Power Requirements: Not specified

LOGISTICS

Portability: Not specified
Consumables Required: Not specified
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified

Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Facial Decon Kit
Model: HMK6500

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Kit (cleansing)

Unit Cost: \$175
Availability: In stock
Current Users: Not specified

Description: Provide immediate decontamination and prompt victim comfort with this specially-designed facial cleansing kit. Gentle pressure flushes face to relieve symptoms on contact. Can be used as an attachment to the decontamination showers or by itself, connected to a standard garden hose, for emergency decontamination response.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Disposable Collection Pool

Model: HM1040

DQE
 8112 Woodland Dr
 Indianapolis, Indiana 46278
 800-355-4628 (Tel)
 317-295-9822 (Fax)
 info@dqeready.com
 Tony Baumgartner
 tbaum@dqeready.com
 http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Containment

Unit Cost: \$89
Availability: In stock
Current Users: Not specified

Description: This single-use collapsible pool is effective for gross field decon of animals, people, or equipment
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: 102 L (27 gal) capacity

Set-up Time: Unfolds in seconds

PHYSICAL PARAMETERS

Size: Unfolded—76 cm x 76 cm x 17.8 cm (30 in x 30 in x 7 in); folded—10.2 m x 76 cm x 17.8 cm (4 in x 30 in x 7 in)

Weight: 1.81 kg (4 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

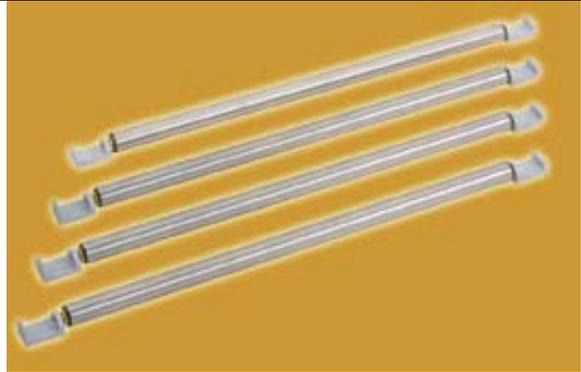
Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Easy Roller Non-Ambulatory Roller System with Pool

Model: HMK11045S; HMK11045A

DQE
 8112 Woodland Dr
 Indianapolis, Indiana 46278
 800-355-4628 (Tel)
 317-295-9822 (Fax)
 info@dqeready.com
 Tony Baumgartner
 tbaum@dqeready.com
 http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Support (roller)

Unit Cost: \$1.2K to \$1.3K
Availability: In stock
Current Users: Not specified

Description: Designed exclusively for the DQE 1.2 m x 2.4 m (4 ft x 8 ft) Standard Collection Pool (steel or aluminum), these rollers allow the decon operations team to easily decontaminate a nonambulatory patient. Four independent rollers mount to pool frame in seconds and allow a backboard to pass over the pool with minimal effort.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 1.22 m x 2.44 m (4 ft x 8 ft)

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Lifetime manufacturer defect

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

K-9 Decon Kit
Model: HMK 901

DQE
8112 Woodland Dr
Indianapolis, Indiana 46278
800-355-4628 (Tel)
317-295-9822 (Fax)
info@dqeready.com
Tony Baumgartner
tbaum@dqeready.com
http://www.dqeready.com



Status: The vendor has responded—7/17/2006

Category: Accessory
Type: Kit (canine)

Unit Cost: \$245
Availability: In stock
Current Users: Not specified

Description: Working dogs have the potential to come into contact with a variety of harmful contaminants. Reduce the effects of contamination by cleaning your canine at the scene. This portable, affordable kit includes everything you need to clean your canine and protect yourself from cross-contamination.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Dogs

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: 5.44 kg (12 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Pool, towels, and dog treat

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Standard operating guidelines pamphlet
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Decon Shower**Model:** RS490T (Shower); RS491T (Curtain)

DuPont Personal Protection
 5401 Jefferson Davis Highway
 Richmond, Virginia 23234
 Customer Service
 800-931-3456 (Tel)
 843-335-8599 (Fax)
 personalprotection@usa.dupont.com
<http://www2.dupont.com/NASApp/tyvek/DPPRequestGateway/0/4/?command=VCProductFamilyIntro&prod=1002>

**Status:** The vendor has responded—7/12/2006**Category:** Shelter**Type:** Shower stand**Unit Cost:** Contact your distributor**Availability:** Contact customer service 800-931-3456**Current Users:** Not specified

Description: RS490T—Constructed of durable PVC piping framework designed to reduce the potential of environmental contamination. Catch basin is made from Tychem Responder material which provides a protective barrier to safely collect decontamination run-off water.

RS491T—Complete curtain attachment including durable PVC piping framework. Curtain is made from Tychem Responder material which provides an excellent protective barrier to help safely collect decontamination run-off water.

The shower wand shall be removable from the extension for use on auxiliary pools and contain, on the wand, a shutoff valve and pistol grip handle. The shower shall be converted to a pool by removing the shower extension and wand only. The floor of the catch basin shall contain an abrasion resistant anti-slip surface constructed from PVC on top of the Responder® fabric.

Decontamination Process: Physical

Application

Personnel decontamination

Application Notes: Typical applications—field operations where one or more portable decontamination showers are needed; emergency hazmat response teams; large industrial sites where portability is a key factor in decontamination

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** Not specified**Bio Agents:** Not specified**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Not specified**Capacity Throughput:** The catch basin capacity shall be approximately 700 L (185 gal)

Set-up Time: The frame shall be capable of being set up with ease and all components snap locking into place for added stability. The frame and catch basin shall be constructed to allow set up as one unit, not two separate units.

PHYSICAL PARAMETERS

Size: The shower frame shall be constructed of a high impact, UV stable PVC with the base measuring 1.52 m x 1.52 m (5 ft x 5 ft) and a maximum height of the shower wand measuring 2.59 m (8 ft 6 in)

The shower height shall be adjustable in 15 cm (6 in) increments from 1.83 m to 2.59 m (6 ft to 8 ft 6 in)

Replaceable 700 L (185 gal) capacity catch basin made from chemical resistant Responder (R) material

Weight: The complete package shall weigh less than 11.3 kg (25 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Portable and easy to put together, anywhere. Deluxe nylon case with wide webbing handles and full-length zipper.

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: The frame and catch basin shall collapse and store conveniently in a nylon carry case with the packaged dimensions measuring 1.5 m (5 ft) in length with a circumference of 0.6 m (24 in)

Durability: The catch basin material shall be constructed from a multiple layer film composite. The catch basin material shall demonstrate no measurable chemical permeation when tested against the ASTM F1001 liquid and gas chemical test battery for a period of 8 h using the permeation test method ASTM F739.

Environmental Conditions: Not specified

Environmental Considerations: Catch basin is made from Tychem Responder material which provides a protective barrier to safely collect decontamination run-off water

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

DuPont™ RelyOn™ Multi-Purpose Disinfectant Cleaner**Model:** RelyOn™ MDC

DuPont Personal Protection
 5401 Jefferson Davis Highway
 Richmond, Virginia 23234
 Customer Service
 800-931-3456 (Tel)
 843-335-8599 (Fax)
 personalprotection@usa.dupont.com
http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/relyon/K14162%20RelyOn%20efficacy.pdf
<http://relyon.dupont.com/index2u.htm>

**Status:** The vendor has responded—11/7/2006**Category:** Commercial Decontaminant**Type:** Liquid—various

Unit Cost: RelyOn™ MDC—5 kg bucket—\$125
 RelyOn™ MDC—500 g shaker (6/case)—\$113
 RelyOn™ MDC—50 g sachet (50/case)—\$117
 RelyOn™ MDC—5g tablet—10 ct (20/case)—\$100
 RelyOn™ MDC—5 g tablet—50 ct (12/case)—\$200

Availability: Immediate**Current Users:** Delaware State Police; Branson, Missouri (against Norovirus); City of Baltimore Fire Department

Description: RelyOn™ MDC is ideal for large scale one step cleaning and disinfection of hard nonporous surfaces. It is effective against Hepatitis A, B, and C, HIV, MRSA, VRE, Norovirus, Influenza A Virus, and Avian Influenza A Virus *. The in-use 1 % solution is nonirritating to eyes and skin. RelyOn™ MDC has no fumes or offensive odor. RelyOn™ MDC is compatible with most hard nonporous surfaces. RelyOn™ MDC can be used to disinfect respirator face plates. CPR manikins can be disinfected in 30 s with a 3 % RelyOn™ MDC solution. RelyOn™ MDC is NSF listed as a D1 disinfectant for food preparation/processing areas. It is convenient to ship and store and has a superior shelf life (powder 3 yr; tablets 2 yr). RelyOn™ MDC has no special disposal requirements.

RelyOn™ MDC is available as a powder in 50 g (0.18 oz), 500 g (1.1 lb), and 5 kg (11 lb) sizes. RelyOn™ MDC is available as 5 g (0.18 oz) tablets in a 10 ct or 50 ct container.

* refer to label for a complete list of efficacy claims

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: RelyOn™ MDC is ideal for large scale one step cleaning and disinfection of hard nonporous surfaces**Testing:** DuPont™ RelyOn™ MDC has demonstrated efficacy against: MRSA and VRE and Hepatitis A, B, and C, HIV, Influenza A, Avian Influenza A virus, and Norovirus

OPERATIONAL PARAMETERS

Materials Decontaminated: RelyOn™ MDC is recommended for use on potentially contaminated, hard nonporous surfaces such as walls, floors, counters, and emergency vehicles**Chemical Agents:** Not applicable**Bio Agents:** Gram (-) and Gram (+) vegetative cells and viruses including: Hepatitis A, B, and C; MRSA; VRE; Influenza A; Avian Influenza A, Virus; HIV; and Norovirus**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** 21.41 % potassium peroxymonosulfate and 1.50 % sodium chloride

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: RelyOn™ MDC—5 kg bucket

RelyOn™ MDC—500 g shaker (6/case)

RelyOn™ MDC—50 g sachet (50/case)

RelyOn™ MDC—5g tablet—10 ct (20/ case)

RelyOn™ MDC—5 g tablet—50 ct (12/case)

Weight: Not specified

Power Requirements: Not applicable

LOGISTICS

Portability: Hand portable

Consumables Required: This is the consumable

Maintenance Required: Not applicable

Maintenance Cost: Not specified

Use/Reuse: One time use

Shelf Life: Powder 3 yr; tablets 2 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Environmentally preferred product contains no quats, phenols, or chlorhexidine. No special waste disposal required.

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not applicable

Operator Training Required: Not applicable

Training Available: Not applicable

Manuals Available: Technical literature and instructions for use are available

Support Equipment: Not specified

Applicable Regulations: Not regulated as a hazardous material by DOT, IMO, and IATA

GENERAL

DuPont™ RelyOn™ Disinfectant Products**Model:** Disinfectant

DuPont Personal Protection
 5401 Jefferson Davis Highway
 Richmond, Virginia 23234
 Customer Service
 800-931-3456 (Tel)
 843-335-8599 (Fax)
 personalprotection@usa.dupont.com
http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/relyon/K14162%20RelyOn%20efficacy.pdf
<http://relyon.dupont.com/index2u.htm>

**Status:** The vendor has responded—11/7/2006**Category:** Commercial Decontaminant**Type:** Liquid—various**Unit Cost:** RelyOn™ Disinfectant Wipes (can)—6/case—\$62

RelyOn™ Disinfectant Wipes (ind)—150/per case—\$88

RelyOn™ Disinfectant Spray—12/case—\$107

RelyOn™ Disinfectant Refill (1 gal)—4/case—\$100

Availability: Immediate**Current Users:** Delaware State Police; Branson, Missouri; City of Baltimore Fire Department

Description: These ready-to-use products are based on a proprietary formulation and are recommended for use by healthcare professionals, emergency personnel, and other establishments concerned with reducing the pathogens that can cause disease and controlling the hazards of cross-contamination. RelyOn™ Disinfectant Products are effective against Hepatitis A, B, and C, MRSA, VRE, HIV, Influenza A Virus, and TB*.

There is no dilution or mixing required. RelyOn™ Disinfectant Products clean and disinfect in one-step, leave no sticky residue, and are compatible with most hard nonporous surfaces. RelyOn™ Disinfectant Products are available in a 473 mL (16 oz) spray, 3.8 L (1 gal) refill, 65 ct canister of wipes, and 50 ct boxes of individually wrapped wipes.

* refer to label for a complete list of efficacy claims

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Recommended for use by healthcare professionals, emergency personnel, and other establishments concerned with reducing the pathogens that can cause disease and controlling the hazards of cross-contamination

Testing: DuPont™ RelyOn™ antiseptics have demonstrated efficacy against: MRSA, VRE, TB, Influenza A, and Hepatitis A, B, and C

OPERATIONAL PARAMETERS

Materials Decontaminated: RelyOn™ Disinfectant Spray and Wipes are recommended for use on potentially contaminated, hard nonporous surfaces such as walls, floors, counters, and emergency vehicles

Chemical Agents: Not applicable

Bio Agents: Gram (-) and Gram (+) Vegetative Cells and Viruses including: Hepatitis A, B, and C; MRSA; VRE; Influenza A; HIV; and TB

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** 70 % isopropyl alcohol**Capacity Throughput:** Not specified**Set-up Time:** Not specified

PHYSICAL PARAMETERS

Size: RelyOn™ Disinfectant Wipes (can)—6/case
RelyOn™ Disinfectant Wipes (ind)—150/per case
RelyOn™ Disinfectant Spray—12/case
RelyOn™ Disinfectant Refill 0.26 L (1 gal)—4/case
Weight: Not specified
Power Requirements: Not applicable

LOGISTICS

Portability: Hand portable
Consumables Required: This is the consumable
Maintenance Required: Not applicable
Maintenance Cost: Not specified
Use/Reuse: One time use
Shelf Life: 4 yr
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Used wipes may be discarded in trash
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not applicable
Operator Training Required: Not applicable
Training Available: Not applicable
Manuals Available: Technical literature is available
Support Equipment: Not specified
Applicable Regulations: Individually wrapped wipes are not regulated
DOT-sprays and canisters—Consumer Commodity-ORMD
IMO-sprays—flammable Liquid-3
IMO-canisters—solids containing flammable liquids-4.1
IATA-sprays and canisters—consumer commodity-9

GENERAL

DuPont™ RelyOn™ Antiseptic Hand Products

Model: Antiseptic

DuPont Personal Protection
 5401 Jefferson Davis Highway
 Richmond, Virginia 23234
 Customer Service
 800-931-3456 (Tel)
 843-335-8599 (Fax)
 personalprotection@usa.dupont.com
http://www2.dupont.com/Personal_Protection/en_US/assets/downloads/relyon/K14162%20RelyOn%20efficacy.pdf
<http://relyon.dupont.com/index2u.htm>



Status: The vendor has responded—11/7/2006

Category: **Commercial Decontaminant**

Type: Liquid—various

Unit Cost: RelyOn™ Antiseptic Hand Wipes (can)—12/case—\$120
 RelyOn™ Antiseptic Hand Spray—30/case—\$107
 RelyOn™ Antiseptic Hand Wipes (ind)—200/case—\$48
 RelyOn™ Antiseptic Wall Dispenser (manual)—1/case—\$15
 RelyOn™ Antiseptic Wall Dispenser (auto)—1/case—\$75
 RelyOn™ Antiseptic Wall Dispenser refill—6/case—\$90

Availability: Immediate

Current Users: Delaware State Police; Branson, Missouri; City of Baltimore Fire Department

Description: According to the U.S. Center for Disease Control (CDC), good hand hygiene is one of the most critical control strategies in preventing the spread of pathogens and infection control. The RelyOn™ Antiseptic Hand Products offer an easy way to disinfect hands and reduce the spread of bacteria, viruses, and other pathogens that can cause illness. Effective against Hepatitis A, B, and C; MRSA; VRE; HIV; Influenza A Virus; and TB*. This is a patented formulation containing a skin-softening emollient to help protect hands from drying. The 59 mL (2 oz) hand spray provides more than 2X the usage of the leading 59 mL (2 oz) gel. There is no sticky residue so gloves can be put on immediately after applying. RelyOn™ Antiseptic Hand Products are available as a 59 mL (2 oz) hand spray, wall mounted unit (manual and auto) with a 1 L (0.26 gal) reservoir, canister of 160 wipes, and individually wrapped wipes (case of 200).

* refer to label for a complete list of efficacy claims

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: Hand products offer an easy way to disinfect hands and reduce the spread of bacteria, viruses, and other pathogens that can cause illness

Testing: DuPont™ RelyOn™ antiseptics have demonstrated efficacy against: MRSA, VRE, TB, Influenza A, and Hepatitis A, B, and C

OPERATIONAL PARAMETERS

Materials Decontaminated: RelyOn™ Antiseptic Hand Products are an easy and effective way to disinfect hands and prevent the spread of that can cause disease and infection

Chemical Agents: Not applicable

Bio Agents: Gram (-) and Gram (+) Vegetative Cells and Viruses including: Hepatitis A, B, and C; MRSA; VRE; Influenza A; HIV; and T

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: 70 % isopropyl alcohol

Capacity Throughput: Not applicable

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: RelyOn™ Antiseptic Hand Wipes (can)—12/case

RelyOn™ Antiseptic Hand Spray—30/case

RelyOn™ Antiseptic Hand Wipes (ind)—200/case

RelyOn™ Antiseptic Wall Dispenser (manual)—1/case

RelyOn™ Antiseptic Wall Dispenser (auto)—1/case

RelyOn™ Antiseptic Wall Dispenser refill—6/case

Weight: Not specified

Power Requirements: Not applicable

LOGISTICS

Portability: Hand portable

Consumables Required: This is the consumable

Maintenance Required: Not applicable

Maintenance Cost: Not specified

Use/Reuse: One time use

Shelf Life: 4 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Used wipes may be discarded in trash

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not applicable

Operator Training Required: Not applicable

Training Available: Not applicable

Manuals Available: Technical literature is available

Support Equipment: Not specified

Applicable Regulations: Individually wrapped wipes are not regulated

DOT-sprays and canisters—Consumer Commodity-ORMD

IMO-sprays—flammable Liquid-3

IMO-canisters—solids containing flammable liquids-4.1

IATA-sprays and canisters—consumer commodity-9

GENERAL

EFT Crystal Clean (Crystal Clean Methamphetamine Decontaminant)**Model:** Crystal Clean 200–3313

EFT
 1012 Oster Drive, Suite A
 Huntsville, Alabama 35816
 256–489–9245 (Tel)
 256–489–9248 (Fax)
 Kevin Irvine
 kirvine@easydecon.com
 http://www.envirofoam.com

**Status:** The vendor has responded—11/30/2006**Category:** Commercial Decontaminant
Type: Solution**Unit Cost:** Five Gallon pail—\$159.50**Availability:** 2 d to 14 d lead time depending on quantity and packaging configuration**Current Users:** CENTCOM, MARCORSSCOM, CST teams, fire departments, police departments, and hazmat teams

Description: Crystal Clean Methamphetamine Decontaminant is a blend that includes ordinary household substances such as those found in hair conditioner and laundry detergent that reduces the levels of residual methamphetamine in less than 30 min but is environmentally friendly. Once applied, the solution draws the residual methamphetamine into the liquid where the hazard is chemically altered, neutralizing the contamination.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Crystal Clean can be used as a foam, liquid, fog, or spray. Foam application has the benefits of providing an easy visual reference for application coverage, greatest coverage per gallon, and allows the formulation to adhere to surfaces to maintain the required contact time.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents**Chemical Agents:** G-series nerve agents, VX nerve agent, H-series blister agents, L-series blister agents, and phosgene oxime**Bio Agents:** Small Pox, Anthrax, E-coli, Sars-Coronavirus, Hoof and Mouth Disease**TIMs:**

- **High Hazard:** Ammonia (anhydrous), carbon disulfide, chlorine, formaldehyde, hydrogen cyanide, hydrogen fluoride, and phosgene
- **Medium Hazard:** Sodium cyanide and methamphetamine
- **Low Hazard:** None

Rad/Nuc Materials: None**Decontamination Solutions:** EasyDECON 200**Capacity Throughput:** 232 m² (2500 ft²) per 4 h**Set-up Time:** Less than 1 min

PHYSICAL PARAMETERS

Size: Five Gallon Pail—56 cm x 33 cm x 33 cm (22 in x 13 in x 13 in)**Weight:** Five gallon pail—24.5 kg (54 lb)**Power Requirements:** None

LOGISTICS

Portability: Handheld Portable

Consumables Required: No consumables, but applicator required

Maintenance Required: Store above freezing temperatures inside

Maintenance Cost: None

Use/Reuse: Discard all after use

Shelf Life: 5 yr

Storage Conditions: 4 °C to 49 °C (40 °F to 120 °F); store inside out of sunlight

Durability: Secure to vehicle, avoid loose cargo transport

Environmental Conditions: Avoid freezing and extreme high temperatures. Broad usability range, controlled storage requirements.

Environmental Considerations: None

Resources: Spraying apparatus required for use

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >8 h training not provided by the manufacturer

Operator Training Required: >8 h training not provided by the manufacturer

Training Available: None

Manuals Available: Mixing instructions included with each kit

Support Equipment: Not specified

Applicable Regulations: When used as directed, EFT Crystal Clean Methamphetamine Decontaminant will reduce residual methamphetamine to permitted and safe levels. Crystal Clean is a powerful decontaminant that needs to be applied safely and handled with care.

Crystal Clean is a skin and mucus membrane irritant. Do not get in eyes, on skin, or on clothing. We recommend the user wear protective eye ware (goggles, face shields, or safety glasses), protective clothing and water proof gloves. In the event of skin contact, wash the affected area with soap and water. For eye contact, flush with plenty of clean water for 15 min. If irritation persists, contact your physician.

Crystal Clean is harmful if swallowed. The vapors may cause respiratory irritation. Use in a well ventilated area if possible. When contamination is discovered in a confined area, the use of a mask or pesticide respirator is recommended. If ingested, contact a poison control center.

Crystal Clean will not damage or stain most fabrics and is safe to use on most surfaces. It will not damage painted metal surfaces, but can cause mild oxidation of unpainted metal surfaces such as iron or nonstainless steel.

GENERAL

EasyDECON™ 200

Model: DF200; EasyDECON 200–5311—Personal Incident Response System (PIDS™); EasyDECON 200–5313—Five Gallon Pail Kit; EasyDECON 200–5315—100 Gallon Drum Kit; EasyDECON 200–5336—500 Gallon Tote Kit

EFT
1012 Oster Drive, Suite A
Huntsville, Alabama 35816
256-489-9245 (Tel)
256-489-9248 (Fax)
Kevin Irvine
kirvine@easydecon.com
<http://www.envirofoam.com>



Status: The vendor has responded—11/30/2006

Category: Commercial Decontaminant
Type: Solution

Unit Cost: PIDS Kit—\$24.15
Five Gallon pail—\$159.50
100 Gallon Drum Kit—\$2923
500 Gallon Tote Kit—\$14.2K

Availability: 2 d to 14 d lead time depending on quantity and packaging configuration

Current Users: CENTCOM, MARCORSYSCOM, CST teams, fire departments
police departments, and hazmat teams

Description: EasyDECON™ 200 Decontamination Solution is a blend that includes ordinary household substances such as those found in hair conditioner and laundry detergent that neutralize both chemical and biological agents in less than 30 min but is environmentally friendly. Once applied, the solution draws the contamination into the liquid where the hazard is chemically altered, neutralizing the contamination.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: EasyDECON can be used as a foam, liquid, mist, or spray. Foam application has the benefits of providing an easy visual reference for application coverage, greatest coverage per gallon, and allows the formulation to adhere to surfaces to maintain the required contact time.

Testing: ABC Laboratories Biodegradation Test; Battelle Research Institute; Central Command Urgent Needs Requirement Testing (Live Agent); Edgewood Chemical and Biological Center (ECBC) (Live Agent); Environmental Protection Agency (Live Agent); IIT Research Institute (Live Agent); Kansas State University (Live Agent); Marine Corps Systems Command (MARCORSYSCOM) (Live Agent); Naval Surface Warfare Center (NAVSEA Dahlgren Division); Rice University; Soldier Biological and Chemical Command (SBCCOM); and West Desert Test Center (Dugway Proving Ground)

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: G-series nerve agents, VX nerve agent, H-series blister agents, L-series blister agents, and phosgene oxime

Bio Agents: Small Pox, Anthrax, E-coli, Sars-Coronavirus, Hoof and Mouth Disease

TIMs:

- **High Hazard:** Ammonia (anhydrous), carbon disulfide, chlorine, formaldehyde, hydrogen cyanide, hydrogen fluoride, and phosgene
- **Medium Hazard:** Sodium cyanide
- **Low Hazard:** None

Rad/Nuc Materials: None

Decontamination Solutions: EasyDECON 200

Capacity Throughput: 7 vehicles per hour to 10 vehicles per hour, 465 m²/h to 697 m²/h (5000 ft²/h to 7500 ft²/h)

Set-up Time: Less than 1 min

PHYSICAL PARAMETERS

Size: PIDS Kit—35 cm x 12.7 cm x 8.9 cm (14 in x 5 in x 3.5 in)
Five Gallon Pail—56 cm x 33 cm x 33 cm (22 in x 13 in x 13 in)
100 Gallon Drum Kit—130 cm x 56 cm x 56 cm (51 in x 22 in x 22 in)
500 Gallon Tote Kit—137 cm x 107 cm x 122 cm (54 in x 42 in x 48 in)

Weight: PIDS Kit—0.91 kg (2 lb)
Five Gallon Pail—24.5 kg (54 lb)
100 Gallon Drum Kit—421 kg (928 lb)
500 Gallon Tote Kit—1019 kg (2246 lb)

Power Requirements: None

LOGISTICS

Portability: PIDS Kit—Handheld Portable

Five Gallon Pail—Handheld Portable

100 Gallon Drum Kit—Vehicle Transport

500 Gallon Tote Kit—Vehicle Transport

Consumables Required: No consumables, but applicator required

Maintenance Required: Store above freezing temperatures inside

Maintenance Cost: None

Use/Reuse: Discard all after use

Shelf Life: 5 yr

Storage Conditions: 4 °C to 49 °C (40 °F to 120 °F); store inside out of sunlight

Durability: Secure to vehicle, avoid loose cargo transport

Environmental Conditions: Avoid freezing and extreme high temperatures. Broad usability range, controlled storage requirements.

Environmental Considerations: EasyDECON™ 200 Decontamination Solution has passed both U.S. and Canadian ecotoxicity testing and is proven to be inherently biodegradable

Resources: Spraying apparatus required for use

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >8 h training not provided by the manufacturer

Operator Training Required: >8 h training not provided by the manufacturer

Training Available: None

Manuals Available: Mixing instructions included with each kit

Support Equipment: Applicator

Applicable Regulations: When used as directed, EnviroFoam Technologies' (EFT) EasyDECON™ 200 Decontamination Solution will neutralize chemical and biological agents rendering them harmless. The EasyDECON™ 200 Decontamination Solution is a powerful disinfectant that needs to be applied safely and handled with care.

EasyDECON™ 200 Decontamination Solution is a skin and mucus membrane irritant. Do not get in eyes, on skin, or on clothing. We recommend the user wear protective eye ware (goggles, face shields or safety glasses), protective clothing and water proof gloves. In the event of skin contact, wash the affected area with soap and water. For eye contact, flush with plenty of clean water for 15 min. If irritation persists, contact your physician.

EasyDECON™ 200 Decontamination Solution is harmful if swallowed. The vapors may cause respiratory irritation. Use in a well ventilated area if possible. When contamination is discovered in a confined area, the use of a mask or pesticide respirator is recommended. If ingested, contact a poison control center.

EasyDECON™ 200 Decontamination Solution will not damage or stain most fabrics and is safe to use on most surfaces. It will not damage painted metal surfaces, but can cause mild oxidation of unpainted metal surfaces such as iron or nonstainless steel.

GENERAL

Fortifier GO/NO-GO Test Kits**Model:** EasyDECON 200–9030; EasyDECON 200–9060; Fortifier GO/NO-GO Test Kit

EFT
 1012 Oster Drive, Suite A
 Huntsville, Alabama 35816
 256–489–9245 (Tel)
 256–489–9248 (Fax)
 Kevin Irvine
 kirvine@easydecon.com
 http://www.envirofoam.com

**Status:** The vendor has responded—11/30/2006**Category:** Accessory
Type: Kit (test kit)

Unit Cost: GO/NO-GO Test Kit (30 Count)—\$76
 GO/NO-GO Test Kit (60 Count)—\$165
Availability: 2 d to 14 d lead time depending on quantity
Current Users: CENTCOM, MARCORSSCOM

Description: The EasyDECON™ 200 Efficacy Test Kit was developed to provide the user with a rapid indication of Fortifier stability in the EasyDECON™ 200 Decontamination Solution. The Efficacy test kit is easy to use and provides accurate results in seconds. Using the Efficacy test kit to test EasyDECON™ 200 Decontamination Solution Fortifier prior to applying EasyDECON™ 200 instills the confidence that the decontamination solutions ready to effectively neutralize all known chemical and biological WMD agents.

Decontamination Process: Not applicable

Application

Application Notes: Provides the user with a rapid indication of Fortifier stability in the EasyDECON™ 200 Decontamination Solution**Testing:** None

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable**Chemical Agents:** Not applicable**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Not applicable**Capacity Throughput:** Not applicable**Set-up Time:** Not applicable

PHYSICAL PARAMETERS

Size: GO/NO-GO—15 cm x 38 cm x 19 cm (6 in x 15 in x 7.5 in)**Weight:** 1.72 kg (3.8 lb)**Power Requirements:** None

LOGISTICS

Portability: Handheld Portable**Consumables Required:** None

Maintenance Required: None

Maintenance Cost: None

Use/Reuse: Discard all after use

Shelf Life: 2 yr

Storage Conditions: 4 °C to 49 °C (40 °F to 120 °F)

Durability: Secure to vehicle, avoid loose cargo transport

Environmental Conditions: Avoid freezing and extreme high temperatures

Environmental Considerations: None

Resources: None

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by the manufacturer

Operator Training Required: <8 h not provided by the manufacturer

Training Available: None

Manuals Available: Mixing instructions included with each kit

Support Equipment: Applicator

Applicable Regulations: None

GENERAL

Reactive Skin Decontamination Lotion

Model: F5402E

E-Z-EM, Inc.
 Healthcare Decontamination
 1111 Marcus Ave., Suite M60
 Lake Success, New York 11042 516-333-8230 x 2323
 888-773-3266 x 2323 (Tel)
 516-302-2919 (Fax)
 Tim Henry
 thenry@ezem.com
 info@rsdecon.com
 http://www.RSDecon.com



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid—RSDL

Unit Cost: \$1.6K per case

Availability: Average lead time: 4 wk to 6 wk. Minimum order quantity is one case of 60 packets.

Current Users: Militaries of Australia, Belgium, Canada, Ireland, the Netherlands, New Zealand, Slovenia, Sweden, CBIRF, Tech Escort, and FDNY

Description: 21 mL and 42 mL individual packets with RSDL pre-impregnated sponge; 500 mL bottle RSDL for decontamination of none human uses (such as equipment)

Decontamination Process: Physical (removes contaminant) and chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: RSDL is a patented, broad spectrum skin decontamination product for personal use after exposure or suspected exposure to certain nerve agents, blister agents, and toxin. RSDL removes and neutralizes these agents from the skin, leaving a nontoxic residue that can be washed off when conditions permit.

Testing: Toxicology testing; safety testing; and efficacy testing. Compatibility testing with various materials and equipment. All necessary clinical trials leading to an FDA cleared Medical Device. Independent U.S. laboratories that have conducted trials and published results:

Edgewood Chemical and Biological Center

Battelle Memorial Institute of Research

Lawrence Livermore National Laboratory

Hill Top Research Inc.

Southern Research Institute

Manufacturing, testing and controls (tracking) are in accordance with FDA cGMP regulations

OPERATIONAL PARAMETERS

Materials Decontaminated: CAs

Chemical Agents: G-agents, GA-tabun, GB-sarin, GD-soman, GF-cyclohexyl sarin; V-nerve agents, VX; Vesicants, HD-Mustard, and L-Lewisite

Bio Agents: T-2 toxins

TIMs:

- **High Hazard:** None
- **Medium Hazard:** None
- **Low Hazard:** None

Rad/Nuc Materials: None

Decontamination Solutions: RSDL

Capacity Throughput: RSDL individual decontamination packets are for a single uses. The simultaneous decontamination is dependent on the speed by which they are handed out and the quantity of available packets on hand.

Set-up Time: Approximately 2 s to open a packet and begin to apply

PHYSICAL PARAMETERS

Size: 356 cm x 49.5 cm x 16.5 cm (14 in x 19.5 in x 6.5 in)

Weight: 2.5 kg (5.5 lb) case of 60 packets

Power Requirements: Not applicable

LOGISTICS

Portability: RSDL is extremely portable and is carried by military warfighters

Consumables Required: Decontamination packets

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: RSDL packets are consumed and not reusable

Shelf Life: 3 yr

Storage Conditions: Not specified

Durability: Successfully under went Mil-STD-810F

Environmental Conditions: Capable of sustaining Mil-STD-810F

Environmental Considerations: Foil wrapper must be disposed of according to environmental regulations

Resources: RSDL is for self-decontamination or, for nonambulatory victims, it can be applied by someone else

Warranty: Chemical tests are performed for each production lot to confirm efficacy, safety and purity. Manufacturing, testing and controls (tracking) are in accordance with FDA regulations. On-going shelf life program under controlled conditions [25 °C (77 °F) and 60 % rh and 30 °C (86 °F) and 60 % rh].

SPECIAL PARAMETERS

Operator Skills Required: Not applicable

Operator Training Required: Not applicable

Training Available: Training manual

Manuals Available: Training manual

Support Equipment: None needed

Applicable Regulations: RSDL is a FDA 510 (k) medical device and need to be stored accordingly

GENERAL

DeFend Emergency Decontamination Shower

Model: 32-001187-0000

Fend-all
 10 Thurber Boulevard
 Smithfield, Rhode Island 02917-1896
 800-336-3255(Tel)
 800-635-4373 (Fax)
 Don Dudke
 6292 Council Ridge Court
 Loveland, Ohio 45140
 513-248-0675 (Tel)
 513-248-1908 (Fax)
 dbudke@bacou-dalloz.com
 http://www.fendall.com



Status: The vendor has responded—9/12/2006

Category: Shelter
Type: Shower stand

Unit Cost: Defend™ Decontamination Pool Bag—\$122
 Defend™ Decontamination PVC Pool—\$279
 Defend™ Emergency Decon Shower Bag—\$114
 Defend™ Drench Hose for Decon Shower—\$58.60
 Defend™ Emergency Decontamination Station—\$516
Availability: Not specified
Current Users: Not specified

Description: The De-Fend Decontamination Shower is designed to provide decontamination facilities in accordance with OSHA standard 1910.120 without distracting emergency responders from their primary task. It is ideal for a variety of locations, including construction sites, loading docks, agricultural locations, and other emergency response areas. The shower flushes contaminants from the worker’s protective clothing while the retention pool collects the rinse water. The large rinsing area accommodates emergency responder in full chemical gear with SCBA. It connects to standard garden hose and can be fully deployed and operational within 10 s of turning on the water.

Decontamination Process: Physical (removes decontaminant)

Application

Personnel decontamination

Application Notes: With the Defend emergency decontamination shower and retention pool, first responders, emergency response teams, secondary or clean-up teams, and EMS teams can have emergency and decontamination shower facilities within minutes of arriving on site.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Provides collection for up to 30 min of use

Set-up Time: Can be fully operational in less than 2 min by one person

PHYSICAL PARAMETERS

Size: Shower is 2.44 m (8 ft) in height; the retention pool is 1.22 m x 1.22 m (48 in x 48 in)

Weight: 15.9 kg (35 lb)

Power Requirements: None

LOGISTICS

Portability: Disassembles to fit in the trunk of a car in a carry bag. Carry bags available.

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Entire system can be stored in convenient carrying bags on virtually any response vehicle (requires 0.14 m^3 (5 ft³) of storage each)

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: The captured fluid, which may include hazardous materials, may be disposed of properly

Resources: One person

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Optional drench hose can be used to assist the emergency responder or victim with decontamination or drenching, otherwise can be used with a standard garden hose

Applicable Regulations: Compliance: OSHA 1910.120. Meets ANSI Z358.1 2004.

GENERAL

MiniFlex Decon Tent**Model:** PRO510-1001

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com

**Status:** The vendor has responded—9/8/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$9K**Availability:** In stock**Current Users:** Not specified

Description: The SWEDE MiniFlex Decontamination Tent is a compact, rapid deployment decontamination shower system with an integrated wastewater collecting basin. The minimal resources utilized in deploying and operating this decontamination facility make it a practical solution for hospitals, mailrooms, and other quick deployment scenarios. Its smaller size makes it fast to install in emergency situations.

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination**Equipment decontamination****Infrastructure decontamination**

Application Notes: The MiniFlex Decon Tent is field customizable for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the MiniFlex Decon Tent is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM**Chemical Agents:** CA**Bio Agents:** BA**TIMs:**

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Water, soap (injector optional)**Capacity Throughput:** 40 people to 75 people per hour**Set-up Time:** 2 min, 1 person

PHYSICAL PARAMETERS

Size: 4.5 m x 2.1 m x 2.3 m (14 ft 9 in x 6 ft 11 in x 7 ft 8 in) deployed; 2.3 m x 0.71 m x 0.41 m (7 ft 7 in x 2 ft 4 in x 1 ft 4 in) stowed**Weight:** 74.8 kg (165 lb)**Power Requirements:** None

LOGISTICS

Portability: Carry bag with handles included. 2 person to 4 person carry.

Consumables Required: Water, DF200 (optional)

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: >5 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: One person

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 4 hr

Operator Training Required: 4 hr

Training Available: Yes

Manuals Available: User manual, training manual (hardcopy manual and CD)

Support Equipment: Pump, water supply, lighting, and shower pallets

Applicable Regulations: Not specified

GENERAL

MidiFlex Decontamination Tent

Model: PRO510-1002

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com



Status: The vendor has responded—9/8/2006

Category: Shelter
Type: Shower system

Unit Cost: \$107K

Availability: In stock

Current Users: Not specified

Description: The SWEDE MidiFlex Decontamination Tent is a compact, rapid deployment decontamination shower system with an integrated wastewater collecting basin. The minimal resources utilized in deploying and operating this decontamination facility make it a practical solution for hospitals, mailrooms, and other quick deployment scenarios.

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The MidiFlex Decon Tent is field customizable for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the MidiFlex Decon Tent is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water, soap (injector optional)

Capacity Throughput: 40 people to 75 people per hour

Set-up Time: 2 min, 2 people

PHYSICAL PARAMETERS

Size: Deployed 4.8 m x 3 m x 2.4 m (15 ft 9 in x 9 ft 10 in x 7 ft 11 in); stowed 3 m x 0.71 m x 0.41 m (9 ft 10 in x 2 ft 4 in x 1 ft 4 in)

Weight: 110 kg (243 lb)

Power Requirements: None

LOGISTICS

Portability: Carry bag with handles included. 2 person to 4 person carry.

Consumables Required: Water, DF200 (optional)

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: >5 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Two person

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 4 hr

Operator Training Required: 4 hr

Training Available: Yes

Manuals Available: User manual, training manual (hardcopy manual and CD)

Support Equipment: Pump, water supply, lighting, and shower pallets

Applicable Regulations: Not specified

GENERAL

Midi 3000

Model: DAV02000001

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com



Status: The vendor has responded—9/8/2006

Category: Accessory
Type: Support (water heater)

Unit Cost: \$13K

Availability: In stock

Current Users: Not specified

Description: The Midi 3000 is a single facility 2-in-1 water and air heater for portable decontamination and shower facilities. The unique flow-through heating system utilizes a proprietary heat exchange system that provides a continuous supply of heated water with a maximum temperature rise of 30 °C (86 °F).

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Midi 3000 is a rugged heater for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the Midi 3000 is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water, soap (injector optional), foam (i.e., DF200, CAF optional)

Capacity Throughput: Not applicable

Set-up Time: < 1 min

PHYSICAL PARAMETERS

Size: 165 cm x 56 cm x 56 cm (65 in x 22 in x 22 in)

Weight: 74.8 kg (165 lb)

Power Requirements: 200 W

LOGISTICS

Portability: Wheeled

Consumables Required: Diesel, water, and electricity

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified
Shelf Life: >5 yr
Storage Conditions: Not specified
Durability: Stainless steel
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 2 hr
Operator Training Required: 2 hr
Training Available: Yes
Manuals Available: User manual, training manual (hardcopy manual and CD)
Support Equipment: Tent, pump, water supply, lighting, and shower pallets
Applicable Regulations: Not specified

GENERAL

Compact 3000

Model: DAV02000003

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com



Status: The vendor has responded—9/8/2006

Category: Accessory
Type: Support (water heater)

Unit Cost: \$11.75K
Availability: In stock
Current Users: Not specified

Description: The Compact 3000 meets the stringent hot water requirements necessary for effective decontamination. The unique flow-through heating system utilizes a proprietary heat exchange system that provides a continuous supply of heated water with a maximum temperature rise of 30 °C (86 °F).

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Compact 3000 is a rugged heater for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the Compact 3000 is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water, soap (injector optional), foam (i.e., DF200, CAF optional)

Capacity Throughput: Not applicable

Set-up Time: <1 min

PHYSICAL PARAMETERS

Size: 103 cm x 577 cm x 681 cm (40.6 in x 22.7 in x 26.8 in)

Weight: 69.9 kg (154 lb)

Power Requirements: 200 W

LOGISTICS

Portability: Wheeled

Consumables Required: Diesel, water, and electricity

Maintenance Required: Not specified

Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: >5 yr
Storage Conditions: Not specified
Durability: Stainless steel
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 2 hr
Operator Training Required: 2 hr
Training Available: Yes
Manuals Available: User manual, training manual (hardcopy manual and CD)
Support Equipment: Tent, pump, water supply, lighting, and shower pallets
Applicable Regulations: Not specified

GENERAL

Compact 4000
Model: DAV02000007

First Line Technology, LLC
3565 Centerview Drive, Unit 4
Washington, DC 20037
866-556-0517 (Tel)
202-318-8480 (Fax)
Randy Sakowitz
703-955-7510 (ext. 122)
rsakowitz@firstlinetech.com
<http://www.firstlinetech.com>



Status: The vendor has responded—9/8/2006

Category: Accessory
Type: Support (water heater)

Unit Cost: \$13.5K

Availability: In stock

Current Users: Not specified

Description: The Compact 4000 is a 2-in-1 portable heater creates a continuous flow of hot air and water to multiple field showers or decontamination systems. The unique flow-through heating system utilizes a proprietary heat exchange system that provides a continuous supply of heated water with a maximum temperature rise of 30 °C (86 °F)

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Compact 4000 is a rugged heater for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the Compact 4000 is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water, soap (injector optional), foam (i.e., DF200, CAF optional)

Capacity Throughput: Not applicable

Set-up Time: < 1 min

PHYSICAL PARAMETERS

Size: 137 cm x 58 cm x 75 cm (54 in x 23 in x 29.5 in)

Weight: 127 kg (280 lb)

Power Requirements: 200 W

LOGISTICS

Portability: Wheeled

Consumables Required: Diesel, water, and electricity

Maintenance Required: Not specified

Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: >5 yr
Storage Conditions: Not specified
Durability: Stainless steel
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 2 hr
Operator Training Required: 2 hr
Training Available: Yes
Manuals Available: User manual, training manual (hardcopy manual and CD)
Support Equipment: Tent, pump, water supply, lighting, and shower pallets
Applicable Regulations: Not specified

GENERAL

Compact 6000

Model: DAV02000004

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com



Status: The vendor has responded—9/8/2006

Category: Accessory
Type: Support (water heater)

Unit Cost: \$15K

Availability: In stock

Current Users: Not specified

Description: The Compact 6000 meets the stringent hot water requirements necessary for effective decontamination. The unique flow-through heating system utilizes a proprietary heat exchange system that provides a continuous supply of heated water with a maximum temperature rise of 30 °C (86 °F).

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant), chemical (if connected to CAF system or solution injector then removes contaminant, detoxify)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Compact 6000 is a rugged heater for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like flow-through water heaters, solution injectors and compressed air foam (CAF) systems, the Compact 6000 is capable of equipment and infrastructure decontamination.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, and TIC/TIM

Chemical Agents: CA

Bio Agents: BA

TIMs:

- **High Hazard:** TIC/TIM
- **Medium Hazard:** TIC/TIM
- **Low Hazard:** TIC/TIM

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water, soap (injector optional), foam (i.e., DF200, CAF optional)

Capacity Throughput: Not applicable

Set-up Time: <1 min

PHYSICAL PARAMETERS

Size: 170 cm x 60 cm x 76 cm (67 in x 24 in x 30 in)

Weight: 147 kg (324 lb)

Power Requirements: 450 W

LOGISTICS

Portability: Wheeled

Consumables Required: Diesel, water, and electricity

Maintenance Required: Not specified

Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: >5 yr
Storage Conditions: Not specified
Durability: Stainless steel
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: 2 hr
Operator Training Required: 2 hr
Training Available: Yes
Manuals Available: User manual, training manual (hardcopy manual and CD)
Support Equipment: Tent, pump, water supply, lighting, and shower pallets
Applicable Regulations: Not specified

GENERAL

DAT Series Decon Showers

Model: DAT1010S, DAT2020S, DAT2525S, DAT2525SMA, DAT2626S, DAT2999S, DAT3030S, DAT3535S, DAT3060S, DAT4070S, DAT4099S

FSI North America
A Division of Fire Safety
International, Inc.™
311 Abbe Road
Sheffield Lake, Ohio 44054
440-949-2400 (Tel)
440-949-2900 (Fax)
<http://www.fsinorth.com>



Status: The vendor has responded—9/8/2006

Category: Shelter
Type: Shower system

Unit Cost: \$4K to \$46K

Availability: Manufactured on demand

Current Users: Military/government sales; fire department sales; airports; EMS/EMA sales; hospital sales; industry; and export distribution/sales

Description: Portable Pneumatic Hazmat Decontamination Shower Systems. Quick deploy with decon pool and shower nozzles integrated in the package.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: From one person first responder DAT1010S/2020S units through the massive 5 line mass casualty DAT4099S, FSI offers a wide range of portable hazmat decon shower systems. FSI units are fully integrated with no extra additions required.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CWA, BWA, TIC, TIM, radiological particulates

Chemical Agents: All (with the use of detergent injector)

Bio Agents: All (with the use of detergent injector)

TIMs:

- **High Hazard:** With the use of detergent injectors
- **Medium Hazard:** With the use of detergent injectors
- **Low Hazard:** With the use of detergent injectors

Rad/Nuc Materials: All (with the use of detergent injector)

Decontamination Solutions: Water or decontaminant

Capacity Throughput: From 12 people per hour to 300 people per hour based on a shower time of 5 min per person. Shower time depends on contaminant.

Set-up Time: 2 min to 5 min

PHYSICAL PARAMETERS

Size: Various

Weight: Various

Power Requirements: Not specified

LOGISTICS

Portability: Convenient carrying case, dimensions vary by shower size

Consumables Required: Water, decontaminant

Maintenance Required: Decon or clean after use

Maintenance Cost: Not specified

Use/Reuse: Can be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Able to withstand rugged conditions

Environmental Conditions: Can perform in any environmental conditions (see environmental considerations below)

Environmental Considerations: Use a water heater during cold/freezing weather

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: On-site training, instruction manuals

Manuals Available: On-site training, instruction manuals

Support Equipment: Inflators, elevation grids, stretchers, and conveyer systems

Applicable Regulations: Not specified

GENERAL

F-SSIRT Safety Tank Showers**Model:** F-SS1RT-350; F-SS1RT-M800; F-SS1RT-L1200; F-SS1RT-L2000

FSI North America
 A Division of Fire Safety
 International, Inc.™
 311 Abbe Road
 Sheffield Lake, Ohio 44054
 440-949-2400 (Tel)
 440-949-2900 (Fax)
<http://www.fsinorth.com>



Shown with privacy panels

Status: The vendor has responded—9/8/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$7.5K to \$16.5**Availability:** Manufactured on demand**Current Users:** Military/government sales; fire department sales; airports; EMS/EMA sales; hospital sales; industry; and export distribution/sales**Description:** Fixed Hazmat Decon Shower System with a fully integrated water tank. One piece fully integrated with water tank on top (no need for water tanks, stage pumps, other).**Decontamination Process:** Physical (removes decontaminant)

Application

Personnel decontamination**Application Notes:** Hazmat decon. FSI Safety Tank Showers designed to meet all appropriate sections of ANSI Z.358.1 (all editions) and German DIN 12 899 Part 1 - 3. Ideal for use in remote areas.**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: TIC/TIM**Chemical Agents:** Not specified**Bio Agents:** Not specified**TIMs:**

- **High Hazard:** All
- **Medium Hazard:** All
- **Low Hazard:** All

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Water or decontaminant**Capacity Throughput:** 3 per hour based on ANSI Standard Z358.1, 1998 tepid water standards**Set-up Time:** Not applicable—apparatus is permanently installed

PHYSICAL PARAMETERS

Size: 1.9 m x 3.1 m x 6.9 m (76.6 in x 120.8 in x 270.8 in) l,w,h**Weight:** Various**Power Requirements:** 120 V

LOGISTICS

Portability: Not applicable—apparatus is permanently installed**Consumables Required:** Water**Maintenance Required:** Refill water tank after use or when flushed**Maintenance Cost:** Not specified

Use/Reuse: Can be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not applicable—apparatus is permanently installed

Environmental Conditions: Can perform in any environmental conditions (see environmental considerations below)

Environmental Considerations: Add a water heater element if this unit is installed outdoors

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: Minimal

Operator Training Required: Minimal

Training Available: On-site training, instruction manuals

Manuals Available: On-site training, instruction manuals

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

F-MAP BIT Ionization Unit

Model: F-MAP3002

FSI North America
 A Division of Fire Safety
 International, Inc.™
 311 Abbe Road
 Sheffield Lake, Ohio 44054
 440-949-2400 (Tel)
 440-949-2900 (Fax)
<http://www.fsinorth.com>



Status: The vendor has responded—9/8/2006

Category: Delivery
Type: Plasma

Unit Cost: \$35K

Availability: Manufactured on demand

Current Users: Military/government sales; fire department sales; airports; EMS/EMA sales; hospital sales; industry; and export distribution/sales

Description: Cold Plasma Ionization Portable Air Purification System for decontaminating shelter interior, rooms, tools and equipment, and other surfaces, using ionized hydrogen peroxide

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Hazmat decon. F-MAP 3200 Portable air purification system. Developed with DOD, neutralizes 99.99999 % of BAs such as anthrax, and 99.999 % of CAs. Fully self-contained, 110 V. Because no HEPA filter is used, there are no contaminated by-products.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CA, BA, TIC, TIM, and radiological particulates

Chemical Agents: All

Bio Agents: All

TIMs:

- **High Hazard:** All
- **Medium Hazard:** All
- **Low Hazard:** All

Rad/Nuc Materials: All

Decontamination Solutions: Hydrogen peroxide

Capacity Throughput: Depends on the capacity of shelter or room

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: 120 V/15 A

LOGISTICS

Portability: Wheeled portable unit

Consumables Required: Hydrogen peroxide

Maintenance Required: Clean after use

Maintenance Cost: Not specified
Use/Reuse: Can be cleaned and reused
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Able to withstand rugged conditions
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: Minimal
Operator Training Required: Minimal
Training Available: On-site training, instruction manuals
Manuals Available: On-site training, instruction manuals
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

DEFENZ™ 120BG and 130BG**Model:** 120BG and 130BG

Genencor International, Inc.
 Cindy Boston
 888-508-4333 (Tel)
 443-508-4333 (Fax) please call first
 Cindy Boston
 cindy.boston@danisco.com
 http://www.genencor.com

**Status:** The vendor has responded—9/8/2006**Category:** **Commercial Decontaminant**
Type: Liquid**Unit Cost:** Call for quote**Availability:** Commercially available off the shelf**Current Users:** Edgewood Chemical and Biological Command Center (ECBC)**Description:** Add dry granules to water supply or foaming for safe, fast, and effective decontamination**Decontamination Process:** Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Crosses into all three stages of decon: immediate, operational, and thorough. Can use DEFENZ with existing equipment. Using the tools of modern biotechnology and in cooperation with the Edgewood Chemical and Biological Command Center (ECBC) at Aberdeen Proving Grounds, Genencor International® has applied its expertise in fermentation technology and large scale manufacturing capabilities to produce the DEFENZ line of enzymes for the decontamination of hazardous chemicals.

Testing: Conducted and current testing with ECBC

OPERATIONAL PARAMETERS

Materials Decontaminated: All water-hardened materials**Chemical Agents:** G and V series agents**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Organophosphate materials
- **Medium Hazard:** Organophosphate materials
- **Low Hazard:** Organophosphate materials

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Enzymatic**Capacity Throughput:** Limited to equipment applications**Set-up Time:** 3 min

PHYSICAL PARAMETERS

Size: Small granules**Weight:** Varies by package size**Power Requirements:** None

LOGISTICS

Portability: Highly portable**Consumables Required:** Decontaminant**Maintenance Required:** None**Maintenance Cost:** None

Use/Reuse: Not applicable

Shelf Life: 3 yr or limitless with protection plan contract

Storage Conditions: Room temp

Durability: High

Environmental Conditions: 5 °C to 55 °C (41 °F to 131 °F)

Environmental Considerations: Water soluble, low dust granule

Resources: Uses available water type, i.e., hard, salt, tap

Warranty: 3 yr or limitless with protection plan contract

SPECIAL PARAMETERS

Operator Skills Required: Minimal

Operator Training Required: Minimal

Training Available: Yes

Manuals Available: Yes

Support Equipment: Application equipment, spray bottles, sponge, etc.

Applicable Regulations: None

GENERAL

M100 SDS Sorbent Decontamination System

Model: 864-000-0000

Guild Associates, Inc.
 5750 Shier-Rings Rd
 Dublin, Ohio 43016
 614-798-8215 (Tel)
 614-798-1972 (Fax)
 products@guildassociates.com
 Bob Freeburn
 bobfreeburn@guildassociates.com
 http://www.guildassociates.com



Status: The vendor has responded—7/18/2006

Category: Delivery
Type: Liquid—sprayer

Unit Cost: \$75 each; >1000—\$60 each

Availability: 15 wk to 18 wk

Current Users: Army

Description: Each M100 SDS consists of one case, two decontamination kits, and two straps. Each decontamination kit contains one applicator mitt and one pack filled with sorbent powder. Because each M100 SDS contains two decontamination kits, two operators may perform decontamination operations simultaneously, thereby reducing the time it takes to complete the mission.

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminate)

Application

Personnel decontamination

Equipment decontamination

Application Notes: The M100 SDS was developed to replace the M11 immediate decontamination equipment, which contains DS2. The M100 SDS removes gross contamination, limits the spread of chemical agent, preserves the integrity of Mission Oriented Protective Posture (MOPP) gear. Guild's design of the M100 SDS allows the warfighter to complete operator's spraydown portion of immediate decontamination in less time, without corrosive solvents, and without the need for water.

Testing: Yes at ECBC

OPERATIONAL PARAMETERS

Materials Decontaminated: Surfaces of nonsensitive equipment

Chemical Agents: HD, VX, and G agents

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Sorbent powder (A200-SiC-1005S)

Capacity Throughput: One M100 decontaminates a 12.5 m² (14.9 yd²) surface in <10 min

Set-up Time: None

PHYSICAL PARAMETERS

Size: Case containing two kits: 36.8 cm x 15.2 cm x 9.2 cm (14.5 in x 6 in x 3.6 in)

Weight: Case containing two kits: 1.3 kg (2.87 lb)

Power Requirements: None

LOGISTICS

Portability: Both M100 and kits are portable

Consumables Required: Single use item

Maintenance Required: None

Maintenance Cost: No maintenance

Use/Reuse: The M100 SDS is a single use, expendable item, intended for both combat and training purposes

Shelf Life: >10 years

Storage Conditions: -46 °C to 781 °C (-50 °F to 160 °F)

Durability: One time use/30 min once opened

Environmental Conditions: Efficacy decreased in extreme humid conditions

Environmental Considerations: None

Resources: None

Warranty: None

SPECIAL PARAMETERS

Operator Skills Required: None

Operator Training Required: None

Training Available: Through ECBC

Manuals Available: Yes

Support Equipment: None

Applicable Regulations: None

GENERAL

Bulk Sorbent One Pound Pouch

Model: 864-100-0001

Guild Associates, Inc.
 5750 Shier-Rings Rd
 Dublin, Ohio 43016
 614-798-8215 (Tel)
 614-798-1972 (Fax)
 products@guildassociates.com
 Bob Freeburn
 bobfreeburn@guildassociates.com
 http://www.guildassociates.com

**Status:** The vendor has not responded**Category:** **Commercial Decontaminant**
Type: Sorbent

Unit Cost: \$25/lb each
 Quantities over 100, \$22.50/lb each
Availability: 10 wk to 12 wk
Current Users: Various military units

Description: The one pound pack is packaged in an air tight pouch. It is a one time use item. To use, the bag is opened and the powder is poured onto an applicator. The applicator is then rubbed across the contaminated surface until the surface appears dry. Sorbent powder is highly porous, allowing it to absorb CA quickly. The absorbed CA is strongly retained within the pores of the sorbent, where it is decomposed over time, thereby minimizing off-gas and contact hazards.

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contact hazard from surface)

Application

Equipment decontamination

Application Notes: The bulk sorbent pouch is packaged in a one-pound pouch allowing for rapid, convenient deployment by a single warfighter. The bulk sorbent powder is designed to be sprinkled across a contaminated area to limit the spread of CAs.

Testing: Yes at ECBC

OPERATIONAL PARAMETERS

Materials Decontaminated: Surfaces of nonsensitive equipment

Chemical Agents: HD, VX, and G agents

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Sorbent powder

Capacity Throughput: At least a 12.5 m² (14.9 yd²) surface

Set-up Time: None

PHYSICAL PARAMETERS

Size: 35.6 cm x 17.8 cm x 5.1 cm (14 in x 7 in x 2 in)

Weight: 2.2 kg (1 lb)

Power Requirements: None

LOGISTICS

Portability: Packaged in 0.45 kg (1 lb) air tight/water proof packs for easy portability

Consumables Required: None

Maintenance Required: Check for cracks/ leaks in package

Maintenance Cost: None

Use/Reuse: Single use item

Shelf Life: Anticipated to be >10 yr

Storage Conditions: -46 °C to 781 °C (-50 °F to 160 °F)

Durability: Single use item/30 min shelf life once opened

Environmental Conditions: Any

Environmental Considerations: None

Resources: None

Warranty: None

SPECIAL PARAMETERS

Operator Skills Required: None

Operator Training Required: None

Training Available: Instructions available

Manuals Available: Instructions available

Support Equipment: None

Applicable Regulations: None

GENERAL

Chemical Protective Barrier

Model: 8760-005-0001

Guild Associates, Inc.
 5750 Shier-Rings Rd
 Dublin, Ohio 43016
 614-798-8215 (Tel)
 614-798-1972 (Fax)
 products@guildassociates.com
 Bob Freeburn
 bobfreeburn@guildassociates.com
 http://www.guildassociates.com

**Status:** The vendor has responded—7/18/2006**Category:** Shelter
Type: Multipurpose (transport containment)**Unit Cost:** \$6K to \$10K depending on size**Availability:** 16 wk to 20 wk**Current Users:** Various military units

Description: The Chem Barrier consists of an air-permeable tent constructed of carbon cloth, butyl coated fabric, and supports. The carbon cloth has been modified to enhance its durability, yet still retain the permeability needed for the personnel inside to breathe easily. The Chem Barrier entrance and rear walls are constructed with butyl coated fabric. The entrance wall contains an opening that is secured with a “Chem-zipper ” Fiberglass rods support the carbon fabric sidewalls. The Chem Barrier includes a runner to contain contamination while loading the contaminated personnel or equipment into a vehicle/aircraft. The Chem Barrier is secured with straps. Personnel straps inside the Chem Barrier provide support to personnel and or equipment when in motion.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination**Equipment decontamination**

Application Notes: Guild Associates, Inc. developed the Chemical Protective Barrier (Chem-Barrier) to contain CA during transport of contaminated personnel and small equipment. The personnel or small equipment are placed inside the Chem-Barrier.

Testing: RESTOP Testing

OPERATIONAL PARAMETERS

Materials Decontaminated: Contain CA during transport of contaminated personnel and small equipment**Chemical Agents:** CAs**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Carbon cloth**Capacity Throughput:** One time use**Set-up Time:** 10 min

PHYSICAL PARAMETERS

Size: Length can be adjusted from 2.7 m (9 ft) to 10.1 m (33 ft) in 0.9 m (3 ft) increments x 1.22 m x 1.5 m (4 ft x 5 ft)**Weight:** 9.1 kg to 54.4 kg (20 lb to 120 lb)**Power Requirements:** None

LOGISTICS

Portability: Packaged individually, is man portable

Consumables Required: Not applicable

Maintenance Required: Check for holes in packaging

Maintenance Cost: Not applicable

Use/Reuse: Single use item

Shelf Life: Anticipated to be >10 yr

Storage Conditions: -46 °C to 781 °C (-50 °F to 160 °F)

Durability: One time use

Environmental Conditions: Not for use in rain or under water

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Yes

Support Equipment: Not specified

Applicable Regulations: None

GENERAL

Protective Blanket

Model: 691-138-0004

Guild Associates, Inc.
 5750 Shier-Rings Rd
 Dublin, Ohio 43016
 614-798-8215 (Tel)
 614-798-1972 (Fax)
 products@guildassociates.com
 Bob Freeburn
 bobfreeburn@guildassociates.com
 http://www.guildassociates.com



Status: The vendor has responded—7/18/2006

Category: Accessory

Type: Containment (absorption and containment)

Unit Cost: \$310 each

Availability: 13 wk to 16 wk

Current Users: Various military units

Description: Each Protective Blanket consists of a carbon cloth fiber material laminated onto a low density polyethylene (LDPE) backing and exterior Velcro straps

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: The Protective Blanket may be used to contain contamination while transporting contaminated casualties. The Protective Blanket is designed to rapidly absorb liquid chemical agents splattered onto it. The Protective Blanket prevents the spread of agent.

Testing: RESTOP Testing

OPERATIONAL PARAMETERS

Materials Decontaminated: Designed to rapidly absorb liquid CAs splattered onto it

Chemical Agents: CAs

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Carbon cloth

Capacity Throughput: One time use

Set-up Time: None

PHYSICAL PARAMETERS

Size: 0.97 cm x 122 cm x 191 cm (0.38 in x 48 in x 75 in)

Weight: 1.36 kg (3 lb)

Power Requirements: None

LOGISTICS

Portability: Each Protective Blanket is packaged individually for storage and portability

Consumables Required: Not applicable

Maintenance Required: Check for holes in packaging

Maintenance Cost: Not applicable

Use/Reuse: None

Shelf Life: Anticipated to be >10 yr

Storage Conditions: -46 °C to 71 °C (-50 °F to 160 °F)

Durability: One time use

Environmental Conditions: -32 °C to 49 °C (-25 °F to 120 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Instructions are available

Support Equipment: Not applicable

Applicable Regulations: None

GENERAL

Sorbent Decontamination Mat

Model: 864-100-0200

Guild Associates, Inc.
 5750 Shier-Rings Rd
 Dublin, Ohio 43016
 614-798-8215 (Tel)
 614-798-1972 (Fax)
 products@guildassociates.com
 Bob Freeburn
 bobfreeburn@guildassociates.com
 http://www.guildassociates.com



Status: The vendor has responded—7/18/2006

Category: **Accessory**

Type: Containment (absorption and containment)

Unit Cost: \$50/each quantity purchase (>100 units) \$45/each

Availability: 10 wk to 12 wk

Current Users: Various military units

Description: Each decontamination mat consists of an absorptive fiber material laminated onto a low-density polyethylene (LDPE) backing. The sorbent powder (200-SiC-1005S) is placed between the LDPE and absorptive fiber material, which enhances the agent absorptive capability of the decontamination mat. Each decontamination mat is shipped and sealed inside an airtight pouch.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: The decontamination mat offers a clean area during thorough decontamination. The decontamination mat is designed to rapidly absorb liquid chemical agents splattered onto it. Eliminates contact hazard and contains contaminant when removing MOPP gear or in other situations where spread of agent is undesirable.

Testing: RESTOP Testing

OPERATIONAL PARAMETERS

Materials Decontaminated: Designed to rapidly absorb liquid CAs splattered onto it

Chemical Agents: CAs

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Sorbent

Capacity Throughput: One time use

Set-up Time: None

PHYSICAL PARAMETERS

Size: 45.7 cm x 61 cm (18 in x 24 in)

Weight: 150 g (0.33 lb)

Power Requirements: None

LOGISTICS

Portability: Each mat is individually vacuum packed in an air tight package and can be transported easily

Consumables Required: Not applicable

Maintenance Required: Check for holes in packaging

Maintenance Cost: Not applicable

Use/Reuse: None

Shelf Life: Anticipated to be >10 yr

Storage Conditions: -46 °C to 71 °C (-50 °F to 160 °F)

Durability: One time use for 30 min

Environmental Conditions: Not for use in rain or under water

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Instructions are available

Support Equipment: Not applicable

Applicable Regulations: None

GENERAL

TridentOne
Model: T-1

HydroTherm, Inc.
4171 Post Rd.
Cummings, Georgia 30040
70-887-0594 (Tel)
70-887-1949 (Fax)
678-522-1012 (Cell)
Ron Nolting
ron@tridentone.com
http://www.tridentone.com
HydroTherm pamphlet
Mock Disaster dvd
Informational packet



Status: The vendor has responded—6/14/2006

Category: Delivery
Type: Liquid aqueous

Unit Cost: \$1.95K

Availability: Will ship within 3 d

Current Users: City of Boston, City of Baton Rouge, State of New York, City of Worcester, State of Georgia, State of Georgia Training Facility, City of Orlando, State of Pennsylvania, Scott Air Force Base, Texas A&M, Rickenbacker International Airport, Moody AFB, Ferrara Fire equipment. State of Connecticut Fire training, Sarasota /Bradenton FL Fire Dept., Massachusetts Fire Academy, University of Maryland.

Description: The TridentOne is constructed from 6061-T6 Aircraft aluminum. With a total weight of 11.3 kg (23 lb) including one 45° coupling, one 90° coupling, universal spanner wrench and three full fog to straight stream nozzles and convenient carrying bag. When the TridentOne is energized the two arms deploy and three fog nozzles create a wall of water with no gaps in cone structure.

Decontamination Process: physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Trident One was developed to assist first responders or civilians in the emergency mass decontamination process immediately following a terrorist event or industrial catastrophe. This unit will easily connect to any 2.5 discharge in seconds and create a wall of water unmatched by anything available today. The TridentOne is used as an expedient personnel and equipment decontamination unit with mass decontamination capabilities. Excellent for hospitals, schools, and emergency management trailers. Use anywhere mass amounts of water are needed to fight fire or facilitate the removal of contaminants.

Testing: Extensive research and development by manufacturer and field tested by previous purchasers. Texas A&M POC Cary Roccaforte and EAI Corp. Anniston Division POC Mick Castillo.

OPERATIONAL PARAMETERS

Materials Decontaminated: The TridentOne can be used anywhere that water is accessible. The newly developed chemical neutralizing induction system allows for a greater scope of contaminants to be removed or neutralized via an external source of solution drawn into the inlet side of the unit.

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: ALL types of active solutions and neutralizing agents are compatible with the TridentOne

Capacity Throughput: The number of personnel/equipment that can be decontaminated will be determined by the substance affecting personnel/equipment, availability of water at the site, ability for first responder to control situation and several other

factors. In an ideal situation with moderate movement through shower (4 s to 5 s) you should expect around 800 victims to 1000 victims (in a perfect world).

Set-up Time: The TridentOne can be attached to any 0.76 m (2.5 ft) discharge an flowing water in around 30 s and removed as quick

PHYSICAL PARAMETERS

Size: 10 m x 5.5 m (34 ft and 18 ft) l,h

Weight: 10.4 kg (23 lb)

Power Requirements: No power needed just a water supply

LOGISTICS

Portability: Unit is situated in a convenient carrying case with shoulder straps and hand straps

Consumables Required: Not applicable

Maintenance Required: After each use it is recommended that the two expanding arms be sprayed with W-D40. The couplings can be sprayed with W-D40 also if they become sticky or difficult to turn.

Maintenance Cost: Minimal

Use/Reuse: Reusable

Shelf Life: Not specified

Storage Conditions: All

Durability: With normal use this product should give years of productivity but if abused or mistreated the life span will shorten greatly

Environmental Conditions: No environmental restrictions or conditions apply

Environmental Considerations: Not specified

Resources: Can be operated by one person (first responder or civilian)

Warranty: Full 5 yr warranty on all parts issues due to workmanship

SPECIAL PARAMETERS

Operator Skills Required: This unit is self explanatory and can be used by anyone

Operator Training Required: This unit is self explanatory and can be used by anyone

Training Available: When needed

Manuals Available: Not applicable

Support Equipment: Not applicable

Applicable Regulations: No restrictions or regulations need to be met

GENERAL

RadPro®

Model: RadPro® is a trademarked product of Environmental Alternatives, Inc.

Intelgard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@inteligard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@inteligard.com
 http://www.inteligard.com
 http://www.eai-inc.com
 Intelgard brochure from conference
Status: The vendor has responded—6/28/2006

Unit Cost: Pricing per volume

Availability: 2 wk

Current Users: DOE, Shaw facility Kingston, TN 2006

Category: **Commercial Decontaminant**

Type: Extraction

Description: Patented Radiological/Nuclear Chemical Extraction Technology for the removal of radiological contaminants from various surfaces and substrates. Chemical process breaks bonds that hold contaminants in or on substrates, captures for removal. EAI's patented RadPro® technology employs proprietary formulations in a sequential process to extract and encapsulate contaminants up to 5.1 cm (2 in) below the substrate surface.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: The process initially demonstrated its abilities to extract radioactive contaminants for the Department of Energy, but similar applications exist in the nuclear utility, fuels processing, medical equipment, oil and chemical (NORM) industries. Not limited to flat, horizontal surfaces—it is effective for walls, ceilings, structural beams, and irregular surfaces such as internal piping, equipment and tools. Nuclear power plants, research laboratory environments, and military.

Testing: Large Scale Demonstration Deployment Program at LANL in New Mexico

West Valley Nuclear Services Company—Large Scale Demonstration Deployment Program

U.S. Department of Energy

Kaiser-Hill Company, LLC, Rocky Flats Environmental Technology Site

OPERATIONAL PARAMETERS

Materials Decontaminated: The process can be employed on a variety of surfaces and materials. Chemical extraction process is effective for a range of contaminants, including: All radionuclides, including transuranics; PCBs; heavy metals, including lead, arsenic, and mercury ; and organics, herbicides, and pesticides.

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Removal of PCB's. Since PCB's are chemically very similar to blistering agents it is postulated the decontamination of these agents could be completed with minimal adjustments to the formulations.
- Heavy metals, light metals, radioisotopes, and beryllium
- **Medium Hazard:** Removal of various toxic materials
- **Low Hazard:** Removal of
 - pesticides/herbicides

Rad/Nuc Materials: The technology has been specifically developed for the removal of radiological contaminants from various surfaces and substrates. Proven effective on alpha, beta and gamma emitting isotopes.

Decontamination Solutions: Not specified

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: Deployment equipment required

LOGISTICS

Portability: Volume dependent

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: 5 yr shelf life

Storage Conditions: Between 0 °C and 38 °C (32 °F and 100 °F) temperatures; store inside out of sunlight

Durability: Not specified

Environmental Conditions: Broad usability range, controlled storage requirements

Environmental Considerations: Waste handling and disposal.

Waste minimization—Liquid waste generated, including all chemical compounds, rinsate and contaminants, is generally between 0.01 gal/ft² and 0.10 gal/ft²; results as low as 0.01 gal/ft² to 0.03 gal/ft² are typical for most projects.

No additional hazards—The process does not introduce additional hazards or disposal issues. The waste stream generated can be characterized based on the contaminants extracted.

Easier disposal—Wastes are containerized in drums, solidified and prepared for shipment to the disposal facility.

Reduced liability—By reducing the volume of waste, EAI dramatically lowers future liability. The high effectiveness of the chemical extraction process often enables permanent “de-listing” or “clean closure” status of building surfaces and materials.

Minimized worker exposure—The RadPro® process minimizes or eliminates airborne contaminants, is nonhazardous, and eliminates the health and safety risks to workers that are common to many other chemical processes.

Resources: Deployment equipment

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: >8 h, not provided by manufacturer

Operator Training Required: >8 h, not provided by manufacturer

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Deployment equipment required

Applicable Regulations: Not specified

GENERAL

Falcon II

Model: Falcon II

Intelgard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@inteligard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@inteligard.com
 http://www.inteligard.com
 Intelgard brochure from conference



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—vehicle size

Unit Cost: Base system \$35K
Availability: 8 wk to 10 wk
Current Users: Not specified

Description: The Falcon II™ is a small scale transportable high pressure liquid dispersal system capable of dual wand hot and cold water/soapy water wash powered as well as CAF decontaminant deployment, powered by a multi-fuel engine. The compact unit will fit in most load carrying vehicles. NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid, high pressure hot wash for gross decon operations.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Deploys CBRN decontamination formulations. Also dispenses liquids such as hot and cold soapy water and glycol-based de-icing fluid as well as standard fire suppression and hazmat foams. System can power twin high pressure hoses simultaneously. May be used with tents and shelters. Fire suppression, hazmat response, CBRN decontamination.

Testing: Dugway Proving Ground 2005. Product evolution in progress.

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, TIC/TIM, and radiological

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: All

TIMs:

- **High Hazard:** Various, including ammonia, hydrogen cyanide, and phosgene
- **Medium Hazard:** Various agents neutralized
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Deploys formulations for removal of all radioisotopes

Decontamination Solutions: DF200, RDG, bleach, water, soap and water, and RadPro formulations

Capacity Throughput: No on board liquid storage. High pressure: 5.5 gpm with dual wands. CAF: Up to 10 gpm liquid rating, up to 50:1 expansion.

Set-up Time: 15 min

PHYSICAL PARAMETERS

Size: 64 cm x 91 cm x 117 cm (25 in x 36 in x 46 in) without fuel tank and handles

Weight: 222 kg (490 lb)

Power Requirements: Diesel engine and water heater fuel 12 V dc, 50 A

LOGISTICS

Portability: Vehicle transportable skid unit

Consumables Required: Decontaminant and fuel

Maintenance Required: Rinse after each use

Maintenance Cost: Full use <\$50

Use/Reuse: May be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Rugged construction with ergonomic controls; has all weather cover

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Diesel fuel for engine/water heater

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >8 h required training

Operator Training Required: >8 h required training

Training Available: Face-to-face training from manufacturer; user manuals

Manuals Available: User manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

H1 Hawk

Model: CAF Skid System

Intelgard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelgard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelgard.com
 http://www.intelgard.com
 Intelgard brochure from conference



Status: The vendor has responded—6/28/2006

Category: **Delivery**
Type: Liquid—trailer/vehicle portable foam

Unit Cost: Base system \$28K

Availability: 1 wk

Current Users: Not specified

Description: Small trailer/vehicle transportable self-contained fire fighting/CBRN decontamination system that uses Intelgard Compressed Air Foam (CAF) deployment technology. On-board fluid reservoirs and fully draft capable. May be used with one or two hoses. Compressor drive, choice of gas or diesel engine. May run off pressurized gas cylinders.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Fire suppression, medium-scale internal or external CBRN decontamination, hazmat remediation, vapor suppression, restoring critical infrastructure, business continuity, and restoration of critical operations. Compressor powered self-contained system also functions as an air compressor station for maintenance and service operations and filling of inflatable shelters, showers and bladders in the field. Great for remote access emergency incidents and rescue vehicles. NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid.

Testing: Field tested West Metro Fire Training Facility 2005

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, TIC/TIM, and radiological

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: All

TIMs:

- **High Hazard:** Various, including ammonia, hydrogen cyanide, and phosgene
- **Medium Hazard:** Various agents neutralized
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Deploys formulations for removal of all radioisotopes

Decontamination Solutions: DF200, RDG, bleach, water, soap and water, and RadPro formulations

Capacity Throughput: Standard unit 379 L (100 gal), 35 gpm liquid application, and foam expansion up to 50:1

Set-up Time: 20 min

PHYSICAL PARAMETERS

Size: 122 cm x 183 cm (48 in x 72 in), will fit standard and small bed pickups, small trailers, and can be sized smaller or larger depending on fluid tank and vehicle size

Weight: ~363 kg (800 lb) dry

Power Requirements: On-board compressor driven

LOGISTICS

Portability: Skid or trailer unit

Consumables Required: Decontaminant

Maintenance Required: Rinse after each use

Maintenance Cost: Full use <\$100

Use/Reuse: May be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not applicable

Durability: Rugged construction, no limitations

Environmental Conditions: Above freezing temperatures

Environmental Considerations: Depends on formulation used

Resources: Gas or diesel fuel for on-board engine

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >8 hr required training

Operator Training Required: >8 hr required training

Training Available: Video training and user manual

Manuals Available: User manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

High Mobility Decontamination System

Model: HM-DS

Intelgard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelgard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelgard.com
 http://www.intelgard.com
 Intelgard brochure from conference



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—trailer mounted

Unit Cost: Base system \$168K

Availability: 10 wk

Current Users: System developed under auspices of JPEO-CBD

Description: HMMWV/high mobility vehicle and tactical trailer mounted system incorporates 24 m (80 ft) hose reel, front and rear-mounted terrain decontamination capabilities, and a roof-mounted remote-controlled monitor for equipment and infrastructure decontamination. System is draft capable and configured to deploy legacy and modern formulations. Foam projection streams up to 24 m (80 ft) with deck gun and standard air compressor and produces up to 37854 L (10 000 gal) of expanded foam per fill for decontamination foam.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid. Large scale decontamination, flight-line operations, seaports, critical tactical assets, terrain decon, industrial/chemical plants, vapor suppression, hazmat control/cleanup, homeland security, homeland defense, and operational and thorough equipment decontamination.

Testing: Tested at Fort Leonard Wood, MO and Dugway PG
 Field tested West Metro Fire Training Facility 2003

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, TIC/TIM, and radiological

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: All

TIMs:

- **High Hazard:** Various, including ammonia, hydrogen cyanide, and phosgene
- **Medium Hazard:** Various agents neutralized
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Deploys formulations for removal of all radioisotopes

Decontamination Solutions: DF200, RDG, bleach, water, soap and water, and RadPro formulations

Capacity Throughput: 1893 L (500 gal) on board liquid; up to 25:1 foam expansion; calibrated at 8:1, 15:1, 25:1 and liquid

Set-up Time: 20 min (including tank fill)

PHYSICAL PARAMETERS

Size: Standard 2.5 m x 9 m x 2.1 m (8 ft x 30 ft x 7 ft) including truck

Weight: Depends on system configuration

Power Requirements: On-board diesel/JP8 powered air compressor

LOGISTICS

Portability: Tactical vehicle/trailer mounted
Consumables Required: Decontaminant and fuel
Maintenance Required: Rinse after each use
Maintenance Cost: Full use <\$50
Use/Reuse: May be cleaned and reused
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Rugged construction with ergonomic controls
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Diesel/JP8 for compressor engine
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >8 h required training
Operator Training Required: >8 h required training
Training Available: Face-to-face training from manufacturer; user manuals
Manuals Available: User manual
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Macaw Compressed Air Foam (CAF) System

Model: Backpack

Intelgard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelgard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelgard.com
 http://www.intelgard.com
 Intelgard brochure from conference



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid

Unit Cost: \$2.8 (without cylinder)

Availability: 1 wk

Current Users: Selected by the U.S. Joint Services for Contamination Avoidance at Seaports of Debarkation (CASPOD) assessments, Restoration of Operations (Rest-Ops), by U.S. Special Operations Command (SOCOM), by training and testing facilities including Dugway Proving Ground, DTRA, and Aberdeen Proving Ground; currently deployed in Iraq and with WMD CSTs.

Description: Man-portable independent backpack system for immediate emergency response including fire suppression, CBRN decontamination, and TIC/TIM remediation. Powered by any standard SCBA cylinder, optional air compressor port.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Fire suppression, small-scale internal, external, vehicle CBRN decontamination, TIC/TIM remediation, vapor suppression, and restoring critical infrastructure. Rapid deployment, ease-of-use, small footprint (fits under a desk, in a closet, in the trunk of a car). NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid.

Testing: Tests conducted by DTRA for small scale decontamination operations during both RestOps and CASPOD ACTDs. Highest RestOps rating for small scale deployment apparatus.

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, TIC/TIM, and radiological

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: All

TIMs:

- **High Hazard:** Various, including ammonia, hydrogen cyanide, and phosgene
- **Medium Hazard:** Various agents neutralized
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Deploys formulations for removal of all radioisotopes

Decontamination Solutions: DF200, RDG, bleach, water, soap and water, and RadPro formulations

Capacity Throughput: On-board liquid capacity: 19 L (5 gal), liquid flow rate 2.5 gpm for expanded foam, foam expansion up to 60:1

Set-up Time: ~5 min

PHYSICAL PARAMETERS

Size: 54.1 cm x 40.4 cm x 28.7 cm (21.3 in x 15.9 in x 11.3 in) h, w, d

Weight: ~29.5 kg (65 lb) charged

Power Requirements: Powered by any standard SCBA cylinder on-board (optional compressor port)

LOGISTICS

Portability: Man-portable

Consumables Required: Decontaminant and air supply

Maintenance Required: Rinse after each use

Maintenance Cost: Full use <>\$50

Use/Reuse: May be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Rugged backpack (currently in use in Iraq)

Environmental Conditions: Above freezing temperatures

Environmental Considerations: Depends on formulation used

Resources: Full SCBA cylinder or air compressor

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: Video training and user manual

Manuals Available: User manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Merlin Compressed Air Foam (CAF) System**Model:** Portable wheeled handcart CAF system

Intelagard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelagard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelagard.com
 http://www.intelagard.com
 Intelagard brochure from conference

**Status:** The vendor has responded—6/28/2006**Category:** Delivery**Type:** Liquid—portable handcart**Unit Cost:** \$5.3 (without cylinder)**Availability:** 1 wk

Current Users: Chosen by the Federal Emergency Management Agency (FEMA) for deployment with all Federally-funded Urban Search and Rescue (USAR) teams; used for advanced technical testing by Sandia National Labs, Dugway Proving Ground, Goodfellow AFB Training Center, and Osan AFB in South Korea

Description: Portable handcart with equipment case and binary tanks. Has several configurations: (1) used as handcart utilizing on-board formulation powered by SCBA cylinders, (2) used with drafting hoses and air compressor for unlimited resources, or (3) quick-release equipment case converting it into a small hand held CAF dispenser.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Fire suppression, medium-scale internal, external, vehicle CBRN decontamination, TIC/TIM remediation, vapor suppression, infrastructure restoration, and can power portable decon shower systems. Versatile and ideal for a wide variety of emergency applications where man-portable equipment that can be easily deployed by personnel in PPE is required, and where ongoing, long-term deployment operations may be required. NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid.

Testing: Recent military-sponsored efficacy testing conducted on DF200 formula was performed with Merlin systems exclusively due to system reliability and patented binary CAF configuration that allows for efficient use of multi-component formulas and the ability to maintain product shelf life while in ready posture. RestOps highest rated system for medium scale deployments.

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, TIC/TIM, and radiological

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: All

TIMs:

- **High Hazard:** Various, including ammonia, hydrogen cyanide, and phosgene
- **Medium Hazard:** Various agents neutralized
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Deploys formulations for removal of all radioisotopes

Decontamination Solutions: DF200, RDG, bleach, water, soap and water, and RadPro formulations

Capacity Throughput: On-board liquid capacity: 57 L (15 gal) [(twin 28.4 L (7.5 gal tanks)], liquid flow rate 2.5 gpm to 10 gpm configurations, foam expansion up to 60:1, and flow balancing. In draft mode with compressor, capacity/throughput is unlimited.

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 1.27 m x 0.53 m x 0.61 m (50 in x 21 in x 24 in) h, w, d

Weight: ~86.2 kg (190 lb) charged

Power Requirements: Powered by any standard SCBA cylinder (2 on-board cylinders) or remote compressor (port standard)

LOGISTICS

Portability: Man-portable

Consumables Required: Decontaminant

Maintenance Required: Rinse after each use

Maintenance Cost: Full use <\$50

Use/Reuse: May be cleaned and reused

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Rugged construction, no limitations

Environmental Conditions: Above freezing temperatures

Environmental Considerations: Depends on formulation used

Resources: Full SCBA cylinder or air compressor

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: >2 h required training

Operator Training Required: >2 h required training

Training Available: Video training and user manual

Manuals Available: User manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Decontamination Escape Kit

Model: DEK

Intelagard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelagard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelagard.com
 http://www.intelagard.com
 Intelagard brochure from conference



Status: The vendor has responded—6/28/2006

Category: Accessory
Type: Kit (decontamination agent)

Unit Cost: \$500

Availability: 1 wk

Current Users: EasyDECON™ DF200 has been adopted by military, hazmat, and emergency response professionals around the world. The equipment included in the DEK is currently in use by emergency response professionals. The protective suit has passed U.S. Military Standard testing.

Description: Single use decontamination escape kit that includes a Personal Incident Decontamination System (22 oz spray bottle of EasyDECON™ DF200), NBC rated mask, coveralls, gloves and boots, hazard materials bag, and light stick are also included PIDS (included in kit) chemicals neutralized/biologicals killed; chemical oxidation process

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: Comes in soft-sided brief-case type bag or hardsided easy-open, rugged compact case to fit snugly into tight storage spaces. Locks for environments accessible to children. Intended for individual, personal use for safe escape from "hot zone" or suspicious environment

Testing: EasyDECON™DF200 Decontamination Solution has been successfully tested by the U.S. Military and a host of other accredited testing institutions on a number of live and simulated CB agents. These testing facilities include ABC Laboratories and Battelle Memorial Institute.

OPERATIONAL PARAMETERS

Materials Decontaminated: BA, CA, and TIC/TIM

Chemical Agents: HD, VX, GA, GB, GD, L, and CX

Bio Agents: Bacillus anthracis spore; Bacillus globigii spores; Erwinia herbicola; E. coli; MS2 bacteriophage (smallpox simulant); Citrus canker; FMD Virus*, and Candida bombicola

TIMs:

- **High Hazard:** Various agents neutralized
- **Medium Hazard:** Not specified
- **Low Hazard:** Various agents neutralized

Rad/Nuc Materials: Nuclear/Radiological Decontamination Escape Kit coming soon

Decontamination Solutions: EasyDECON™ DF200 decontamination spray comes in a convenient, easy to use hand-held sprayer. EasyDECON™ DF200 has been adopted by military, hazmat, and emergency response professionals around the world.

Capacity Throughput: Not applicable

Set-up Time: 3 min

PHYSICAL PARAMETERS

Size: 40 cm x 30 cm x 15 cm (16 in x 12 in x 6 in) w,h,d

Weight: 2.7 kg (6 lb) in softside case

Power Requirements: Not applicable

LOGISTICS

Portability: Man-portable, comes in convenient carrying case

Consumables Required: Not applicable

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: 1 time use

Shelf Life: EasyDECON™ DF200 spray has a 5 yr shelf life

Storage Conditions: Indoor storage preferred between 0 °C and 38 °C (32 °F and 100 °F)

Durability: Comes in durable soft or hard sided case

Environmental Conditions: Broad usability range, controlled storage requirements

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: Owners manual provided

Operator Training Required: Owners manual provided

Training Available: Owners manual provided

Manuals Available: Owners manual provided

Support Equipment: Not applicable

Applicable Regulations: Not specified

GENERAL

GDS 2000

Model: GDS 2000

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 http://www.kaercher-futuretech.com
 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: **Commercial Decontaminant**

Type: Nonaqueous chemical only

Unit Cost: Upon request

Availability: In stock

Current Users: MODA Saudi Arabian, German Armed Forces, Swedish Armed Forces, and Portuguese Armed Forces

Description: Industrially manufactured, ready-to-use, nonaqueous decon agent, working universally against all known CAs and warfare agent thickener. GDS 2000 may be stored for more than 10 yr if stored in original containers, nonopened, according to the given storage conditions. Application of GDS 2000 by means of appropriate devices is possible in the temperature range from -30 °C up to +49 °C (-22 °F to 120.2 °F).

Decontamination Process: Chemical (neutralizes contaminants)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Nonaqueous decontamination solution. For a complete C-decontamination approximately 0.1 L/m² to 0.2 L/m² are sufficient. MBTs and other blinded vehicles can be totally decontaminated in 5 min to 10 min, using only 10 L to 20 L (2.6 gal to 5.3 gal) of GDS 2000.

Testing: Tested within the German Armed Forces and the Swedish Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: Chemical agents (CAs)

Chemical Agents: All known CAs

Bio Agents: Chemical decon only

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: GDS 2000

Capacity Throughput: The complete detoxification of a combat tank only requires 12 L to 24 L (3 gal to 6 gal) of GDS 2000. Will work in 5 min to 10 min.

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: 35 cm x 17 cm x 47 cm (13.8 in x 6.7 in x 18.5 in)

Weight: 25 kg (55 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Not specified

Consumables Required: GDS 2000

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Consumable

Shelf Life: >10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -30 °C to 49 °C (-22 °F to 120.2 °F)

Environmental Considerations: Biologically degradable (88 % degradation rate within 28 d); water pollution class 1 (low hazard for water)

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: Follow instruction on the label

Operator Training Required: Follow instruction on the label

Training Available: Operational training

Manuals Available: Manual and CD

Support Equipment: Applicators

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

RDS 2000

Model: RDS 2000

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 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: **Commercial Decontaminant**

Type: Liquid—foam radioactive

Unit Cost: Upon request

Availability: In stock

Current Users: MODA Saudi Arabia. German Armed Forces ongoing test program.

Description: The RDS 2000 radioactive decontaminant is a concentrated decontamination agent consisting of two separate components for the production of an N decontamination agent which is used for the N decontamination surfaces contaminated with radioactive particles. Before applying the agent on the surface, the concentrated decontamination agent is produced by mixing the two components (RDS 2000 Component 1 and RDS 2000 Component 2). The ready-for-use RDS 2000 is turned into an aqueous solution and into foam with the help of a foaming unit (foam nozzle, etc.) and after that applied on the surfaces to be decontaminated. After the respective reaction time, the decontamination agent is rinsed off together with the radioactive contaminants using a high-pressure water jet.

Decontamination Process: Physical (removes contaminants)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Concentrated nuclear decontamination agent

Thorough decontamination

Testing: Tested within the German Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: Radiological particles

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: RDS 2000

Capacity Throughput: Deradiation solution to be applied with an decont applicator

Set-up Time: Not applicable

PHYSICAL PARAMETERS

Size: 54.9 cm x 29 cm x 25 cm (21.65 in x 11.42 in x 9.84 in)

Weight: 15 kg (33 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Portable

Consumables Required: RDS 2000

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Consumable

Shelf Life: 5 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: 0 °C to 49 °C (32 °F to 120.2 °F)

Environmental Considerations: Biologically degradable; meets the requirements of water pollution class 1

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: Follow instruction on the label

Operator Training Required: Follow instruction on the label

Training Available: Operational training

Manuals Available: Manual and CD

Support Equipment: Applicators

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

AMGDS 1000

Model: AMGDS 1000

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 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
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 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—nonaqueous

Unit Cost: Upon request

Availability: In stock

Current Users: Italian Ministry of Defence and Portuguese Navy

Description: The AMGDS 1000 is the smaller version of the AMGDS 2000, a newly developed dispensing system for the highly effective nonaqueous GDS 2000 decontaminant. The electric driven pump module guarantees the fully automatic easy application of the decontaminant in an easy and convenient spray mode. Using the 15 m (50 ft) application hose, which is stored on the attached hose reel, the object to be decontaminated can be reached ergonomically correctly and treated all around without moving the module. The GDS 2000 decontamination solution is sucked out directly from its original 20 L (5.3 gal) jerry can which is stored in its bracket, attached to the system. Due to its integrated large wheels, the AMGDS 1000 is easily movable even on unpathed tracks in the field. The AMGDS is ideal to be used as a single decontamination module or integrated into a decontamination system.

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants), or physical for nuclear decon

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Application Module for GDS 2000 Decontamination Solution

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when GDS 2000 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: DS2 and GDS 2000

Capacity Throughput: 10 vehicles per hour

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 87.9 cm x 66 cm x 75.9 cm (34.6 in x 26 in x 29.9 in)

Weight: 60 kg (132.3 lb)

Power Requirements: Electrical engine: 230 V, 50 Hz, ac

LOGISTICS

Portability: Carrying handles and two built in wheels

Consumables Required: GDS 2000

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -32 °C to 50 °C (-20 °F to 120 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Decontaminants and electrical power

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

AMGDS 2000

Model: AMGDS 2000

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 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—frame mounted

Unit Cost: Upon request

Availability: In stock

Current Users: German Armed Forces, MODA Saudi Arabia, Swiss Army, and Swedish Army

Description: The AMGDS 2000 is the newly developed dispensing system for the highly effective nonaqueous GDS 2000 decontaminant. The integrated double pump module guarantees the fully automatic easy application of the decontaminant, especially in a 2-wand spray mode. Using the 15 m (50 ft) application hose, which is stored on the attached hose reel, the object to be decontaminated can be reached ergonomically correctly and treated all around without moving the module. Together with the solution tank, the AMGDS 2000 holds enough decontaminant to treat more than 400 m² (480 yd²) of surface, equal to 5 vehicles. All components are integrated into a tubular frame. Carrying handles and two built-in wheels enable easy movement and transportation.

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants), or physical for nuclear decon

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Easy and convenient, fully automatic application system for the highly effective, nonaqueous GDS 2000 decontamination solution

Testing: Tested within German Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when GDS 2000 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: DS2 and GDS 2000

Capacity Throughput: 20 vehicles per hour

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 70 cm x 60 cm x 78 cm (27.5 in x 23.6 in x 30.7 in)

Weight: 130 kg (286 lb)

Power Requirements: Electrical engine: 400 V, 50 Hz, ac

LOGISTICS

Portability: Carrying handles and two built in wheels

Consumables Required: GDS 2000

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -32 °C to 50 °C (-20 °F to 120 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Decontaminants and electrical power

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Decon Sprayer

Model: DS-10

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 Alfred-Karcher-Str. 6-10
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 Karcher pamphlet
 Karcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—mixer

Unit Cost: Upon request

Availability: In stock

Current Users: German Armed Forces, Belgium Armed Forces, Austrian Armed Forces, Kuwait Armed Forces, Israel Home Front Command, Lithuanian Armed Forces, Hungarian Armed Forces, and Singapore Armed Forces

Description: The DS 10 system is a compact container with an integral mixer-unit for mixing and independently dispensing decontamination and cleaning chemicals. Because of the new concept, the DS 10 can be universally used for all different types of applications. By mixing in the container, large amounts of decontamination and cleaning agents can be mixed, dispensed and emulsified. The mixture is dispensed by the container being pressurized by this integral air pump. The DS 10 is produced from chemical resistant special stainless steel. All gaskets and the fitted flexible pressure hose are resistant against solvents, acids and alkaline solutions as well as any active ingredients used. The integrated mix-installation gets directly driven and operated through the pump tube. The unit has been constructed in such a way that liquids, powder and decontamination chemicals can be easily mixed or emulsified. 10 L (2.6 gal) of mixture, solution or emulsion can be prepared at any one time. By screwing down the pump the container becomes pressurized which allows the solutions to be dispensed by the use of the hand held trigger gun. A pressure/safety valve will open when the maximum operating pressure has been exceeded.

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants), or physical for nuclear decon.

Application

Personnel decontamination

Equipment decontamination

Application Notes: Handy, portable pressure spray device with an integral mixer unit. To be used for the application of cleaning, disinfection or neutralizing agents. The DS 10 is made of chemical resistant materials so it can be used for applying solvents, acids and alkaline solutions.

Testing: Tested within the German Armed Forces, Hungarian Armed Forces, and Austria Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when GDS 2000 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: DS2, C8, STB, HTH, TDE202, and GDS 2000

Capacity Throughput: Not specified

Set-up Time: 2 min

PHYSICAL PARAMETERS

Size: 70 cm x 21 cm (27.7 in x 8.34 in) diameter

Weight: 9.5 kg (21 lb)

Power Requirements: Manual

LOGISTICS

Portability: Can carry on back or with a trolley

Consumables Required: Decontaminants

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Max temp 60 °C (140 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water and/or decontaminants

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Decon Sprayer
Model: DS-10 S

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 Karcher pamphlet
 Karcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid

Unit Cost: Upon request
Availability: Manufactured on demand. Lead time 8 wk.
Current Users: Luxemburg Armed Forces

Description: Made of chemical resistant materials so it can be used for applying solvents, acids and alkaline solutions. For the application of liquid decontaminants, especially for the newly developed decon solution GDS 2000. Characteristics:
 Stainless steel container
 Pressurized with manual pump or
 Pressurized air
 Large filling opening
 Integrated Manometer
 CE and TÜV certified
Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants), or physical for nuclear decon

Application

Personnel decontamination

Equipment decontamination

Application Notes: Handy, portable decon sprayer with 10 L (2.6 gal) filling volume
Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when GDS 2000 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: DS2, C8, STB, HTH, TDE202, and GDS 2000

Capacity Throughput: Not specified

Set-up Time: 2 min

PHYSICAL PARAMETERS

Size: 57.7 cm x 21.2 cm (22.7 in x 8.34 in) diameter

Weight: 5.5 kg (12.1 lb)

Power Requirements: Manual

LOGISTICS

Portability: Can carry on back or with a trolley
Consumables Required: Decontaminants
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Can be reused after cleaning and maintenance
Shelf Life: >5 yr
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Max temp 60 °C (140 °F)
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer
Operator Training Required: <8 h provided by manufacturer
Training Available: Operational training and maintenance training
Manuals Available: Manual and CD
Support Equipment: Water and/or decontaminants
Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Deconta D2

Model: Deconta D2

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 Kärcher pamphlet
 Kärcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: **Delivery**
Type: Liquid—alkaline solutions

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 10 wk.

Current Users: Swiss Armed Forces

Description: Special resistant against alkaline decontamination solutions. Long-lasting Kärcher Futuretech quality. Robustly designed, specifically for military use.

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants), or physical for nuclear decon

Application

Personnel decontamination

Equipment decontamination

Application Notes: Personnel decontamination—expedient decontamination (self/buddy and hospital) and thorough decontamination (self/buddy and hospital)

Equipment decontamination [CBR hardened items (e.g., resistant coatings, buttoned up items), non-CBR hardened items (e.g., plastics, metals, coatings), and personal protective equipment (PPE)]

Infrastructure decontamination (confined spaces, building materials, and soil/terrain)

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when GDS 2000 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant.

Decontamination Solutions: DS 2 and GDS 2000

Capacity Throughput: Not specified

Set-up Time: 1 min

PHYSICAL PARAMETERS

Size: 15 cm x 40 cm (5.9 in x 15.8 in) diameter

Weight: 3 kg (6.6 lb)

Power Requirements: Manual

LOGISTICS

Portability: Portable
Consumables Required: Decontaminants
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Can be reused after cleaning and maintenance
Shelf Life: >5 yr to 10 yr
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: From -20 °C to 50 °C (-4 °F to 122 °F)
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer
Operator Training Required: <8 h provided by manufacturer
Training Available: Operational training and maintenance training
Manuals Available: Manual and CD
Support Equipment: Water and/or decontaminants
Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

EDADS

Model: EDADS

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Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid foam

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 12 wk.

Current Users: U.A.E Armed Forces

Description: To mix, to generate, and to apply the decon emulsion for material decontamination. To generate aqueous solutions for terrain decontamination.

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Equipment decontamination [CBR hardened items (e.g., resistant coatings, buttoned up items), non-CBR hardened items (e.g., plastics, metals, coatings), sensitive items (e.g., electronics, optics), and personal protective equipment (PPE)]

Infrastructure decontamination (confined spaces, open areas, building materials, and soil/terrain)

Testing: Tested within U.A.E Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when TDE 202 emulsion is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: TDE 202, C8, STB

Capacity Throughput: 12 tanks/large vehicles to 16 tanks/large vehicles

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 1.2 m x 0.80 m x 1.56 m (47.2 in x 31.5 in x 61.4 in)

Weight: 520 kg (1146 lb)

Power Requirements: Electrical engine: 400 V/50 Hz

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -32 °C to 50 °C (-20 °F to 122 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water, decontaminants, and electrical power

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Lightweight Multi-Purpose Decontamination System

Model: LMDS

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Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—steam cleaner

Unit Cost: Upon request

Availability: In stock

Current Users: U.S. Armed Forces

Description: Eliminates NBC agents from material, vehicles, and personnel

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Personnel decontamination—expedient decontamination (self/buddy, mass casualty, and hospital) and thorough decontamination (self/buddy, mass casualty, and hospital)

Equipment decontamination [CBR hardened items (e.g., resistant coatings, buttoned up items), non-CBR hardened items (e.g., plastics, metals, coatings), sensitive items (e.g., electronics, optics), and personal protective equipment (PPE)]

Infrastructure decontamination (confined spaces, open areas, building materials, and soil/terrain)

Testing: Currently tested within U.S. Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: All known when U.S. decontaminant DF 200 is used

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant

Decontamination Solutions: DF 200, others (C8, STB, HTH, and TDE202) with add-on kit

Capacity Throughput: 120 people per hour with field shower

4 vehicles per hour to 6 vehicles per hour

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 125 cm x 58 cm x 104 cm (49.2 in x 22.7 in x 40.9 in)

Weight: ~254 kg (561 lb)

Power Requirements: Diesel engine: 4.2 kW/5.6 hp at 3000 rpm

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminants and water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Mil Std 810

Environmental Conditions: -30 °C to 50 °C (-20 °F to 120 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water, diesel, and decontaminants

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Mediclean

Model: 2000 SE

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Status: The vendor has responded—6/28/2006

Category: Delivery

Type: Liquid—application and extraction

Unit Cost: Upon request

Availability: In stock

Current Users: German Armed Forces, U.S. Armed Forces, and Germany and French Civil Defence

Description: The appliance works on the principle of DAE (direct application and extraction method). It enables safe decontamination directly on-site and at the same time reduces the amount of decontamination solution needed. The decontamination solution is sucked off immediately and collected in a separate tank. This minimizes the risk of contaminants being spread. The body nozzle is adapted to the DAE method and prevents the solution from dripping off, everything is extracted, nothing drops onto the ground. The brush ring can be easily replaced. A new sterile brush ring is inserted for every patient. The appliance is equipped with an integrated tank for the disinfection or decontamination solution, and a tank for collecting the used solution. This tank can be removed to enable easy disposal of the waste liquid. The spray pressure and water quantity are adapted for the medical requirements. A heater integrated in the mediclean 2000 SE makes it possible to heat the disinfection or decontamination solution to the required temperature.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Decon device designed for the decontamination of injured persons and is used for patients who have come into contact with chemical, biological, or radioactive materials. Direct application and extraction system with integrated heating of the decont solution.

Testing: Tested within French Civil Defence

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Not specified

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant

Decontamination Solutions: RM 21

Capacity Throughput: 6 persons to 8 persons, injured

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 82 cm x 53 cm x 69 cm (32.2 in x 20.8 in x 27 in)

Weight: 38 kg (84 lb)

Power Requirements: Electrical system: 230 V/50 Hz

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminant and water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Indoor use only (tent also)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water, decontaminants, and electrical power

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Multi-Purpose Decontamination System

Model: MPDS

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Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—steam cleaner

Unit Cost: Upon request

Availability: In stock

Current Users: U.S. Armed Forces, Canadian Armed Forces, British Armed Forces, MODA Saudi Arabia, German Armed Forces, Singapore Armed Forces, and many other military customers worldwide

Description: The motor drives the water pump and the blower over which the fuel pump is driven. The generator is coupled to the motor which supplies the module with electrical energy. The fuel for the motor and the flow-thru heater is drawn from a canister. The motor is started with an electrical starter or a hand crank. The water pump delivers the water by way of a pre-filter to the flow-thru heater. In the flow-through heater, the water is routed through a heating spiral. If the burner of the flow-thru heater is switched on, the fuel pump delivers fuel from the canister to the burner nozzle. The fuel is atomized by the nozzle, mixed with air and burned. The blower provides the necessary combustion air. The heated water or the hot steam flows through the high pressure hose to the hand spray gun. For dry steam operation, the dry steam is routed through the steam hose to the hedgehog nozzle. In addition, cleaning, deconserving, or disinfecting agent can be drawn in by the water pump with the chemical suction hose from a canister. The chemical injector metering valve regulates the quantity drawn in.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Multi Purpose Decontamination System. Universal use either as an independent single unit or incorporated into a complex decon system.

Testing: Tested within German Armed Forces, British, Canadian, Austrian, and Saudi Arabian Armed Forces

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Most known but not VX

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant

Decontamination Solutions: DF 200, others (C8, STB, HTH, TDE202) with add-on kit

Capacity Throughput: 120 people per hour with field shower

4 vehicles per hour to 6 vehicles per hour

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 125 cm x 58 cm x 85 cm (49.2 in x 22.7 in x 33.5 in)

Weight: ~220 kg (485 lb)

Power Requirements: Diesel engine: 4.2 kW/5.6 hp at 3000 rpm

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminants, water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -30 °C to 60 °C (-22 °F to 140 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water, diesel, and decontaminants

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

SCS 1801 DE

Model: SCS 1801 DE

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 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Liquid—module steam cleaner

Unit Cost: Upon request

Availability: In stock

Current Users: Canadian Armed Forces and Singapore Civil Defence

Description: The offered operating modes (cold-water stage, hot-water stage, hot-steam stage, dry-steam stage) guarantee a tailor-made fit of the system to every cleaning task. For heavy soilings, e.g., clay, not only high-pressure is needed, but also a large water quantity (washing-effect). Aggressive cleaning agents used for this purpose do not run through the pump, but are directly applied via the second injector at 1500 L/h. The enormous performance of the SCS 1801 DE allows operation with one or two spray lances at 110 bar and 1800 L/h as well as automatic pressure and volume adjustment. Together with the new power nozzle optimal cleaning results are achieved. The extension kit “Dry Steam” is used for cleaning and disinfection of the interior of drinking water tanks. When POL tanks are being degassed the remaining gas adheres to the dry-steam drops which are then flushed out. This procedure ensures safe welding and repair works. The very accurate metering valve in combination with highly concentrated Kärcher cleaning agents guarantee economic operation. Protection against calcification, electric filling level supervision, stainless steel alloyed engine, and durable materials keep the maintenance costs low. The air-cooled diesel engine with 17 HP (12,5 kW) together with the axial intendance-free power unit. When the HP gun is closed, the RPM is automatically reduced, i.e. less noise and reduced wear and tear of the aggregate. Quality assurance according to DIN ISO 9001, AQAP 2110. The integrated sound absorption reduces the noise to 79 dB only, i.e. the system can be used almost everywhere.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: High-pressure steam jet cleaner of the upper performance level. Integrated two lance operation mode. High flexibility due to 4 different operation modes. Adjustable system performance according to the cleaning task. Also available are special accessories for special operations.

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Most known but not VX

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Deradiation—removal of solid, dust and liquid radiological contamination from the surface. RDS 2000 is the suitable decontaminant

Decontamination Solutions: C8, STB, HTH, and TDE202 solutions with add-on kit

Capacity Throughput: 120 people per hour with field shower

4 vehicles per hour to 6 vehicles per hour

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 129 cm x 85 cm x 103 cm (50.6 in x 33.5 in x 40.7 in)

Weight: ~411 kg (900 lb)

Power Requirements: Diesel engine: 12.5 kW/17 hp at 3000 rpm

Direct supply of diesel for engine and burner from NATO canister. Convenient electric starter. Engine and burner turn off automatically when the unit runs out of fuel. 24 V safety voltage.

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminants and water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: -30 °C to 560 °C (-22 °F to 120 °F)

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water, diesel, decontaminants, and applicators

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Turbosprayer

Model: Turbosprayer

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 Karcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Delivery
Type: Gas—aerosols

Unit Cost: Upon request

Availability: In stock

Current Users: MODA Saudi Arabia and Portuguese Navy

Description: Technology

- Aerosols generator with heavy duty turbine system
- Output volume of disinfection liquids adjustable up to 48 L/h
- Aerosol size adjustable between 0 µm and 400 µm
- Permanent control of the filling level in the deferent task because of transparent tank material. Spray distance from 7 m to 20 m (7.6 yd to 21.9 yd)
- Easy to operate
- low weight

Decontamination Process: Chemical (neutralizes contaminants) by physical application (removes contaminants)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: The Turbo Sprayer is designed for the interior decontamination/disinfection of vehicles, tents, container or buildings. For immediate actions in all situations when the control of bacteria, fungus, or insects is advised.

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Not specified

Bio Agents: The decontamination capability depends on the decontaminant that will be used

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Liquid disinfectants

Capacity Throughput: Container capacity—6 L (1.5 gal)

Water throughput—maximum 38 L/h (10 gal/h)

Aerosol size—20 µm to 400 µm

Spray distance—7 m to 20 m (8 yd to 22 yd)

Set-up Time: 2 min

PHYSICAL PARAMETERS

Size: 86.9 cm x 17.8 cm x 26.9 cm (34.2 in x 7 in x 10.6 in)

Weight: 7 kg (15.4 lb)

Power Requirements: Electrical system: 230 V/50 Hz

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: 3 yr t

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Indoor use

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Operational training and maintenance training

Manuals Available: Manual and CD

Support Equipment: Water and/or decontaminants, and electrical power

Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Field Shower
Model: Field Shower

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 Kärcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Shelter
Type: Shower stand

Unit Cost: Upon request
Availability: In stock
Current Users: Worldwide in use

Description: Effective shower system for universal and rapid use for the decontamination of persons. The field shower runs on the Kärcher high pressure modules. The Kärcher field shower operates on two sides in opposite directions. On one side RM 21, a decontamination agent which does not irritate the skin, is added by means of a chemical injector. On the other side, this is rinsed off with clean water. The two-stage method enables an optimal decontamination result requiring only a minimum of water and chemicals.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: The shower allows a showering for 2 persons at the same time with or without using cleaning agents. It can be used for personal decontamination or as hygiene- or refreshing-shower and can be operated with Kärcher high-pressure steam jet cleaners.

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water and RM 21

Capacity Throughput: 120 persons per hour

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 2 m (79 in) maximum shower height

Weight: 48 kg (118 lb)

Power Requirements: Water pressure 2 bar to 4 bar

LOGISTICS

Portability: Can be disassembled for transport
Consumables Required: RM-21 and water
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Can be reused after cleaning and maintenance
Shelf Life: >5 yr to 10 yr
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer
Operator Training Required: <8 h provided by manufacturer
Training Available: Operational training and maintenance training
Manuals Available: Manual and CD
Support Equipment: Water and/or decontaminants
Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

Showerjet 15
Model: Showerjet 15

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Status: The vendor has responded—6/28/2006

Category: Shelter
Type: Shower stand

Unit Cost: Upon request
Availability: In stock
Current Users: Worldwide in use

Description: The shower-system allows a shower for maximum 15 persons at the same time with or without using cleaning agents. It can be used for personal decontamination or as hygiene-/refreshing shower. To be operated with KÄRCHER high-pressure cleaners. First apply decon solution; second rinse with special shower nozzles.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Effective shower system for universal and rapid use for the decontamination of 15 persons simultaneously

Testing: Confidential test report is available by request

OPERATIONAL PARAMETERS

Materials Decontaminated: The decontamination capability depends on the decontaminant that will be used

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water and RM 21

Capacity Throughput: 300 persons per hour

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 2 m (78 in) height

Weight: 48 kg (118 lb)

Power Requirements: Water pressure 2 bar to 4 bar

LOGISTICS

Portability: Can be disassembled for transport

Consumables Required: RM-21 and water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Can be reused after cleaning and maintenance

Shelf Life: >5 yr to 10 yr
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 12 mo to 18 mo

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer
Operator Training Required: <8 h provided by manufacturer
Training Available: Operational training and maintenance training
Manuals Available: Manual and CD
Support Equipment: Water and decontaminants
Applicable Regulations: MSDS and safety regulations will be delivered with the system/decontaminant and are also available upon request

GENERAL

BIT (Binary Ionization Technology)
BIT™ Spray Gun Decontamination System

Model: L-3 Communications

L3 Communications: Applied Technologies
 Lou Montulli
 760-977-9601
 lou.montulli@L-3Com.com
 Alexeter Technologies, LLC
 830 Seton Court, Suite 6
 Wheeling, Illinois 60090
 847-419-1507 (Tel)
 847-419-5281 (Fax)
 Tom Fryzel
 tfryzel@alexeter.com
 http://www.alexeter.com/



Status: The vendor has responded—6/16/2006

Category: Delivery
Type: Plasma

Unit Cost: Varies, starts at about \$20K
Availability: Commercially available
Current Users: Not applicable

Description: The BIT™ (Binary Ionization Technology) system from L-3 utilizes a plasma activation system to generate the ionized form of the hydroxide free radical. The result is a highly reactive chemical species that can achieve a 7-log kill of biological threats, such as bacillus anthracis, within seconds. The system uses a simple solution of hydrogen peroxide that once activated degrades to simple water and oxygen within 30 s. The device uses a plasma to ionize a stream of dilute hydrogen peroxide, producing hydroxyl radicals, which are very effective in breaking cell and spore wall, achieving high kill rates very quickly. Clean up is minimized because the solution recombines to leave only water and gaseous oxygen as residue.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Because of the short life of the oxidative mixture, the mixture does not damage the treated area and no secondary clean up is required. The BIT product line can be packaged in a variety of products. Titan is designing products for decontaminating surfaces, air volumes, gloves, and contained areas.

Testing: See www.alexeter.com

OPERATIONAL PARAMETERS

Materials Decontaminated: Inert surfaces

BA effectiveness—BIT has proven effective in reducing spores, viruses, bacteria, and mold within seconds in third party lab testing. BIT has reduced GD, VX, and HD 98 % in less than 2 min in government labs. BIT is effective against organophosphates such as pesticides.

Chemical Agents: GD, VX, and HD

Bio Agents: 7-log kill of biological threats, such as bacillus anthracis. Effective against virtually all BA.

TIMs:

- **High Hazard:** Testing in progress
- **Medium Hazard:** Testing in progress
- **Low Hazard:** Testing in progress

Rad/Nuc Materials: Not specified

Decontamination Solutions: Hydrogen peroxide is a strong oxidizer that is used for high-level disinfection and sterilization.

Capacity Throughput: Not specified

Set-up Time: The BIT system is ready to use in minutes

The product consists of a sprayer and solutions that can be set up and changed out in seconds through quick disconnects

PHYSICAL PARAMETERS

Size: Varies

Weight: Varies

Power Requirements: 120 V ac

LOGISTICS

Portability: Man-portable

Consumables Required: Hydrogen peroxide and electricity

Maintenance Required: Replace electrodes periodically

Maintenance Cost: Varies

Use/Reuse: Not applicable

Shelf Life: 2 yr

Storage Conditions: Ambient, indoors

Durability: Very durable

Environmental Conditions: Not specified

Environmental Considerations: The product only requires gloves and goggles to apply. The BIT product will not harm a building, its contents, or occupants. The BIT spray breaks down into water and oxygen and does not require any post treatment clean-up.

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: Minimal

Operator Training Required: Minimal

Training Available: Yes

Manuals Available: Yes

Support Equipment: Not required

Applicable Regulations: None

GENERAL

Mobile Spray System

Model: MCU-S-1000

L3 Communications: Applied Technologies
 Lou Montulli
 760-977-9601 (Tel)
 lou.montulli@L-3Com.com
 http://www.l-3gsi.com/
 L3 pamphlet



Status: The vendor has responded—9/26/2006

Category: Delivery
Type: Liquid

Unit Cost: \$20K USD

Availability: Manufactured on demand

Current Users: Not specified

Description: Mobile decon spray system that can be quickly deployed and operated for CB decontamination

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: BIT process provides expedient and thorough decontamination efficacy against CB agents. 6-log reduction biological and 5-log reduction chemical via a proprietary cold-plasma activated (Binary Ionization Technology) H₂O₂ based solution.

Testing: Efficacy tests: BIT surface spray efficacy on biological organisms; aseptic processing, critical device and healthcare; livestock disinfection and agriculture: reduction of food-borne pathogens; EPA toxicity tests; and fungi spores

1. University of South Florida Center for Biological Defense
2. Microbial Insights
3. L-3 Communications
4. Microbiotest
5. Beckman Coulter
6. Poultry Health Research Laboratory

OPERATIONAL PARAMETERS

Materials Decontaminated: CA and BA

Chemical Agents: HD, GD, and VX

Bio Agents: Anthrax, bacillus atrophaeus, E. coli, staphylococcus aureus, sacybotrys chartarum, pseudomona aeruginosa

TIMs:

- **High Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization:
 - Arsine, chlorine, formaldehyde, hydrogen chloride, hydrogen cyanide hydrogen sulfide, phosgene, sulfur dioxide, and sulfuric acid.
- **Medium Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Acrylonitrile, carbon monoxide, carbonyl sulfide, chloroacetone, methanesulfonyl chloride, nitrogen dioxide, sulfur trioxide, sulfuryl chloride, titanium tetrachloride, trichloroacetyl chloride, and trifluoroacetyl chloride.
- **Low Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Arsenic trichloride, bromine chloride, chloroacetaldehyde, chloroacetyl chloride, crotonaldehyde, cyanogen chloride, dimethyl sulfate, and hydrogen iodide.

Rad/Nuc Materials: Not Applicable

Decontamination Solutions: Proprietary H₂O₂-based solution

Capacity Throughput: Spray rate 20 mL/ft² or 5 gal/1000 ft²

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 106 cm x 59 cm x 61 cm (42 in x 22 in x 24 in) h,l,w

Weight: 68 kg (150 lb)—less decon solution 3.6 kg/gal (8 lb/gal)

Power Requirements: 120 V ac/15 A/60 Hz

LOGISTICS

Portability: Portable

Consumables Required: Decon solution—70 mL/min; nozzle electrodes—50 h of use

Maintenance Required: Before and after each use purge air and fluid lines with compressed air (or N₂)

Maintenance Cost: Decon solution—50 mL/min

Use/Reuse: Nozzle life (electrodes)—50 h

Shelf Life: Apparatus: >5 yr; decon solution: 2 yr

Storage Conditions: Easily stored and stacked, light weight. -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh.

Durability: Ruggedized construction

Environmental Conditions: -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh

Environmental Considerations: Safe to use:

- BIT™ neutralizing solution does not harm common materials
- BIT™ decomposes into oxygen and water
- EPA Toxicity Safety Tests passed with only eye goggle use recommended

Resources: One-man operation

Warranty: 90 d warranty

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: None—O&M documentation only

Manuals Available: Manuals and CD

Support Equipment: None

Applicable Regulations: No DOT restrictions

GENERAL

Decontamination Shower

Model: DN-1000

L3 Communications: Applied Technologies
 Lou Montulli
 760-977-9601 (Tel)
 lou.montulli@L-3Com.com
 http://www.l-3gsi.com/
 L3 pamphlet



Status: The vendor has responded—9/26/2006

Category: Shelter

Type: Shower stand

Unit Cost: \$30K USD

Availability: Manufactured on demand

Current Users: Not specified

Description: Decontamination shower for neutralization of CB agents

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: BIT process provides expedient and thorough decontamination efficacy against CB agents. 6-log reduction biological and 5-log reduction chemical via a proprietary cold-plasma activated (Binary Ionization Technology) H₂O₂ based solution.

Testing: None to date

OPERATIONAL PARAMETERS

Materials Decontaminated: CA and BA

Chemical Agents: HD, GD, and VX

Bio Agents: Anthrax, bacillus atrophaeus, E. coli, staphylococcus aureus, sacyhybotrys chartarum, pseudomona aeruginosa

TIMs:

- **High Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization:
- Arsine, chlorine, formaldehyde, hydrogen chloride, hydrogen cyanide hydrogen sulfide, phosgene, sulfur dioxide, and sulfuric acid.
- **Medium Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Acrylonitrile, carbon monoxide, carbonyl sulfide, chloroacetone, methanesulfonyl chloride, nitrogen dioxide, sulfur trioxide, sulfuryl chloride, titanium tetrachloride, trichloroacetyl chloride, and trifluoroacetyl chloride.
- **Low Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Arsenic trichloride, bromine chloride, chloroacetaldehyde, chloroacetyl chloride, crotonaldehyde, cyanogen chloride, dimethyl sulfate, and hydrogen iodide.

Rad/Nuc Materials: Not Applicable

Decontamination Solutions: Proprietary H₂O₂-based solution

Capacity Throughput: Decontamination <1 min

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 244 cm x 152 cm x 30 cm (96 in x 60 in x 12 in)—Shower unit (h,l,w)

106 cm x 59 cm x 61 cm (42 in x 22 in x 24 in)—MCU-1 (h,l,w)

106 cm x 59 cm x 61 cm (42 in x 22 in x 24 in)—MCU-2 (h,l,w)

Weight: 181 kg (400 lb)—less decon solution 3.6 kg/gal (8 lb/gal)

Power Requirements: 120 V ac/30 A/60 Hz

LOGISTICS

Portability: Vehicle/shelter mounted; fixed site

Consumables Required: Decon solution—70 mL/min; nozzle electrodes—500 h of use

Maintenance Required: Before and after each use purge air and fluid lines with compressed air (or N₂)

Maintenance Cost: Decon solution—70 mL/min

Use/Reuse: Nozzle life (electrodes)—500 h

Shelf Life: Apparatus: >5 yr; decon solution: 2 yr

Storage Conditions: -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh

Durability: Ruggedized construction

Environmental Conditions: -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh

Environmental Considerations: Safe to use:

- BIT™ neutralizing solution does not harm common materials
- BIT™ decomposes into oxygen and water
- EPA Toxicity Safety Tests passed with only eye goggle use recommended

Resources: One-man operation

Warranty: 90 d warranty

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: None—O&M documentation only

Manuals Available: Manuals and CD

Support Equipment: None

Applicable Regulations: No DOT restrictions

GENERAL

Mobile Air Purification

Model: MAP-3200

L3 Communications: Applied Technologies
 Lou Montulli
 760-977-9601 (Tel)
 lou.montulli@L-3Com.com
 http://www.l-3gsi.com/
 L3 pamphlet



500 CFM MAP Unit



Status: The vendor has responded—9/26/2006

Category: Delivery
Type: Plasma

Unit Cost: \$25K USD
Availability: Manufactured on demand
Current Users: Not specified

Description: Mobile air purification system that is quickly deployed to provide purified air for temporary (mobile) shelters or vehicles

Decontamination Process: Chemical (neutralizes contaminant)

Application

Infrastructure decontamination

Application Notes: BIT process provides expedient and thorough decontamination efficacy against CB agents. 6-log reduction biological and 5-log reduction chemical via a proprietary cold-plasma activated (Binary Ionization Technology) H₂O₂ based solution. Immediate neutralization: BIT™ aqueous mist supercharged with powerful hydroxyls that neutralize in seconds.

Testing: Efficacy tests: BIT aseptic processing, critical device and healthcare; livestock disinfection and agriculture: reduction of food-borne pathogens; airborne biological organisms; EPA toxicity tests; and fungi spores:

1. University of South Florida Center for Biological Defense
2. Microbial Insights
3. L-3 Communications
4. Microbiotest
4. Beckman Coulter

OPERATIONAL PARAMETERS

Materials Decontaminated: CA and BA

Chemical Agents: HD, GD, and VX

Bio Agents: Anthrax, bacillus atrophaeus, E. coli, staphylococcus aureus, sacybotrys chartarum, pseudomona aeruginosa

TIMs:

- **High Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization:
 - Arsine, chlorine, formaldehyde, hydrogen chloride, hydrogen cyanide hydrogen sulfide, phosgene, sulfur dioxide, and sulfuric acid.
- **Medium Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Acrylonitrile, carbon monoxide, carbonyl sulfide, chloroacetone, methanesulfonyl chloride, nitrogen dioxide, sulfur trioxide, sulfuryl chloride, titanium tetrachloride, trichloroacetyl chloride, and trifluoroacetyl chloride.
- **Low Hazard:** TIMs listed are planned to be 3rd party tested. The following have the potential for BIT decontamination/neutralization: Arsenic trichloride, bromine chloride, chloroacetaldehyde, chloroacetyl chloride, crotonaldehyde, cyanogen chloride, dimethyl sulfate, and hydrogen iodide.

Rad/Nuc Materials: Not Applicable

Decontamination Solutions: Proprietary H₂O₂-based solution

Capacity Throughput: 500 cfm. Connects to external fluid supply for long running.

Set-up Time: 5 min

PHYSICAL PARAMETERS

Size: 66 cm x 91 cm x 41 cm (26 in x 36 in x 16 in) h,l,w

Weight: 79 kg (175 lb)—less decon solution 3.6 kg/gal (8 lb/gal)

Power Requirements: 120 V ac/15 A/60 Hz

LOGISTICS

Portability: Portable

Consumables Required: Decon solution—70 mL/min; nozzle electrodes—800 h of use

Maintenance Required: Before and after each use purge air and fluid lines with compressed air (or N₂)

Maintenance Cost: Decon solution—10 mL/min (0.6 in³)

Use/Reuse: Nozzle life (electrodes)—800 h

Shelf Life: Apparatus: >5 yr; decon solution: 2 yr

Storage Conditions: Easily stored and stacked, light weight. -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh.

Durability: Ruggedized for remote operation

Environmental Conditions: -32 °C to 60 °C (-25 °F to 140 °F); noncondensing rh

Environmental Considerations: Safe to use:

- BIT™ neutralizing solution does not harm common materials
- BIT™ decomposes into oxygen and water
- EPA Toxicity Safety Tests passed with only eye goggle use recommended

Resources: One-man operation

Warranty: 90 d warranty

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: None—O&M documentation only

Manuals Available: Manuals and CD

Support Equipment: None

Applicable Regulations: No DOT restrictions

GENERAL

DeCon Hoop

Model: DH-40, DH-40H, DH40-4P, DH40-4PH

MITI Manufacturing Co., Inc.
 2996 Teller Court
 Grand Junction, Colorado 81504
 970-243-9500 (Tel)
 970-243-9200 (Fax)
 Lisa Beyerbach
 lisa@mitico.com
 http://www.mitico.com



Status: The vendor has responded—9/7/2006

Category: Shelter

Type: Shower stand

Unit Cost: DH40—\$656

DH40-H—\$725

DH40-4P—\$866

DH40-4PH—\$935

Availability: Not specified

Current Users: Not specified

Description: Patented. Durable, lightweight construction for rugged use, designed for quick set-up on site. Breaks down for easy stowage and use for patient on backboard. Design concentrates water at the area being decontaminated, minimizing amount of water required for decontamination and disposal. Minimizes overspray for better control. Two piece design provides for use in full or half loop configuration:

Features easy to use cam-lok couplings to join hoop halves

Doubles as portable emergency shower for factories

Fast, efficient, cost effective decontamination

Can be quickly set up for on-site application

Uses a standard (3/4 in) hose connection

Custom sizes available upon request

Two extendable handles provided with each model, for use when handles are fully extended

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Quick on-site portable decontamination. Applications include self wash-off, two person, three person, 14.5 L (55 gal) barrels, overpacks, patients on backboard, equipment, bunker gear, and overhaul.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified

- **Medium Hazard:** Not specified

- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Water output:

- 4.6 gpm @ 30 psi

- 4.8 gpm @ 40 psi

Increase pressure for higher output if necessary

Set-up Time: Can be quickly set up for on-site application

PHYSICAL PARAMETERS

Size: Decon Hoop (2 piece)—114.30 cm x 99.06 cm (45 in x 39 in) OD, ID with two 109.22 cm (43 in) handles; 167.64 cm (66 in) fully extended handle.

Decon Hoop with outside and inside handles (2 piece)—114.30 cm x 109.22 cm (45 in x 32 in) OD, ID with two 109.22 cm (43 in) handles; 167.64 cm (66 in) fully extended handle.

Decon Hoop (4 piece) ideal for tight storage situations—114.30 cm x 99.06 cm (45 in x 39 in) OD, ID Handles 81 cm (32 in), 134 cm (53 in) fully extended handle.

Decon Hoop with outside and inside handles (4 piece) ideal for tight storage situations—114.30 cm x 81.28 cm (45 in x 39 in) OD, ID Handles 81cm (32 in), 134 cm (52 in) fully extended handle.

Weight: DH-40 6.36 kg (14 lb)

DH-40H 6.36 kg (14 lb)

DH40-4P 4.55 kg (10 lb)

DH40-4PH 6.36 kg (14 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: After use always inspect hoop and extension handles for damage. Drain all water from hoop and components. Wash off any contaminant and dry off outside of hoop and extension handles with soft rag. Stow components in area where they will be located together and will not be crushed by other equipment. Keep extension handles free of grit and grime that will interfere with the extending function of the extension tube. Occasionally remove and clean center extension tube. Polish with steel wool to make tube slide in and out easily when installed in the extension handle, also take care when stowing and handling so as not to bend or dent the extension tube or tube handle housing as they will not properly function and may become jammed.

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Stow in dry compartment and in stowage bag (optional). Freeze up prevention in cold weather applications—let a small amount of water continue flowing through system after charging to prevent freeze up. Be sure to drain system supply lines and components after use to prevent freeze up.

Durability: Constructed of durable, lightweight, corrosion free aluminum pipe and tube

Environmental Conditions: Not specified

Environmental Considerations: Waste water must be properly contained and disposed of

Resources: Not specified

Warranty: 90 d against defect in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Electronic

Support Equipment: Accessories include DHSB4 (DH40/40H storage bag); DHSB44 (Decon Hoop storage bag, fits models DH40-4P /DH40-4PH)

Applicable Regulations: Not specified

GENERAL

DeCon Pool

Model: DP-6, \$598, DPI-5, DPI-8

MITI Manufacturing Co., Inc.
2996 Teller Court
Grand Junction, Colorado 81504
970-243-9500 (Tel)
970-243-9200 (Fax)
Lisa Beyerbach
lisa@mitico.com
<http://www.mitico.com>



Status: The vendor has responded—9/7/2006

Category: Accessory
Type: Containment

Unit Cost: DP-6—\$598

DPI-5—\$960

DPI-8—\$1.2K

Availability: Not specified

Current Users: Not specified

Description: Designed to be used in conjunction with MITI DeCon DH40 series hoops. Quick set up for on-site use. The pool is reusable, the liner disposable.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Provides cost effective waste water retention and containment. Unique design compresses for stowage and requires no air or water to inflate.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 157 cm x 198 cm (62 in x 78 in) inner diameter, outer diameter, 322 L (85 gal) capacity

Weight: 8.18 kg (18 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: The pool is reusable, the liner disposable

Shelf Life: Not specified

Storage Conditions: Unique design compresses for stowage

Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 90 d against defect in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Hinge-Mate Decon Shower Tent

Model: SSDS-6

MITI Manufacturing Co., Inc.
 2996 Teller Court
 Grand Junction, Colorado 81504
 970-243-9500 (Tel)
 970-243-9200 (Fax)
 Lisa Beyerbach
 lisa@mitico.com
 http://www.mitico.com



Status: The vendor has responded—9/7/2006

Category: Shelter
Type: Shower stand and tent

Unit Cost: \$2.3K

Availability: Not specified

Current Users: Not specified

Description: The shower is constructed of durable material and hardware, which are able to withstand extreme temperatures and cold conditions alike and are impervious to most oils, salts, acids, and most chemicals. It deploys easily and is lightweight for easy handling. PVC coated 50/50 polyester substrate. Pullrated fiberglass rods and hinge-mate mating hinges assemblies.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Miti's SSDS-6 Portable Decon Shower provides for quick deployment and containment for overspray from the decontamination shower process, while also providing privacy. Ideal for first response, temporary or long-term applications.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Not specified

Set-up Time: < 30 s

PHYSICAL PARAMETERS

Size: 167 cm x 183 cm x 290 cm (5 ft 6 in x 6 ft x 9 ft 6 in); 25 cm x 25 cm x 178 cm (10 in x 10 in x 70 in) packaged size

Weight: 10.9 kg (24 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: The shower is constructed of durable material and hardware. Impervious to most oils, salts, acids, and most chemicals.

Environmental Conditions: Able to withstand extreme temperatures and cold conditions

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 90 d against defect in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Each unit comes complete with stowage/carry bag, and two ground stakes. Feet are outfitted with protective rubber foot cushions. Ground flaps provided.

Applicable Regulations: Not specified

GENERAL

Portable High Pressure Soap Injector

Model: Model FSI-1

MITI Manufacturing Co., Inc.
 2996 Teller Court
 Grand Junction, Colorado 81504
 970-243-9500 (Tel)
 970-243-9200 (Fax)
 Lisa Beyerbach
 lisa@mitico.com
 http://www.mitico.com



Status: The vendor has responded—9/7/2006

Category: Accessory
Type: Support (soap injector)

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The system's design enables the injector to overcome supply line pressures to 1250 psi, allowing the injector to be placed at a distance from the decontamination area, in the cool zone, for maximum safety and control. Manually operated, high pressure foot pump. Serrated foot treadle for superior foot grip.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Manually operated, this system injects fluid soaps or decontamination agents in a controlled and regulated manner and only when needed. Provides multiple use capability for diverse applications, including personnel, apparatus, equipment, barrel, and building wash downs.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Water

Capacity Throughput: Capacity: 757 L (2 gal) capacity

Overcome line pressures to 879 kg/m² (1938 lb)

Supply line hose: 0.95 cm x 305 cm (3/8 in x 10 ft)

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 30.5 cm x 30.5 cm x 30.5 cm (12 in x 12 in x 12 in)

Weight: 13.6 kg (30 lb) empty

Power Requirements: Not specified

LOGISTICS

Portability: Convenient carrying handle

Consumables Required: Water

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 90 d against defect in materials and workmanship

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Decon Formula MDF-500
Model: MDF-500

Modec, Inc.
 4725 Oakland Street
 Denver, Colorado 80239
 800-967-7887 (Tel)
 303-373-2696 (Tel)
 303-373-2699 (Fax)
 info@deconsolutions.com
 Brian Kalamanka
 http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid—foam disinfectant and neutralizing

Unit Cost: \$75 per gal
Availability: Not specified
Current Users: Not specified

Description: When used as directed MDF-500 meets the requirements for hospital use. It provides professionals with an unmatched remediation tool. Modec's Decon Formula MDF-500 has been registered for use with the USEPA. Produced under license from Sandia National Laboratories, MDF-500 incorporates patented technologies originally developed to counter chemical and biological warfare toxants.
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Remediation—As MDF-500 is a disinfectant and neutralizing cleaner, it provides professionals with an unmatched remediation tool. It cleans and restore surfaces and areas affected by mold and its chemical metabolites. In addition, it is safe to use in virtually any indoor remediation application.
 Restoration—MDF-500 has been shown to be an effective cleaning agent for microbial volatile organic compounds [mVOC's] and mycotoxins, chemicals byproducts that have been known to be allergenic. MDF-500 mitigates conditions caused by these metabolites of mold. MDF-500 can be used in exterior applications on porous surfaces to inhibit mold the growth of mold.
Testing: The USEPA has accepted Modec's Label for its Modec Decon Formulation. Approved for antimicrobial disinfectant and fungicidal uses including hospitals applications, Modec's Decon Formulation has been assigned EPA Registration No.'s 80346-1 and 80346-2.
 Modec completed and submitted the required toxicology, chemical analysis and efficacy test reports required by law and submitted its formulation to the EPA review under Section 3 Registration requirements prescribed by FIFRA. Many of the laws, guidance, and policies that govern the Office of Pesticide Programs (OPP) are contained in the Federal Insecticide, Fungicide, and Rodenticide Act. Modec's Decon Formulation can be used in commercial and residential applications. Modec's Decon Formulation is produced in EPA Reg. Est. CO-65001-01.
 MDF-500 has been used successfully in thousands of commercial mold remediation applications representing over four million square feet economically remediated. Modec's MDF-500 has also been approved for use with ULV Foggers and on various exterior surfaces including cement, aluminum, wood decks and siding. MDF-500 comes in binary (two-part) form that does not require mixing of powders.

OPERATIONAL PARAMETERS

Materials Decontaminated: Biologicals
Chemical Agents: Not applicable
Bio Agents: Bactericidal activity—when used as directed MDF-500 exhibits effective disinfectant activity against the organisms: Staphylococcus aureus, Salmonella choleraesuis, pseudomonas aeruginosa, and meets the requirements for hospital use
 Fungicidal activity—MDF-500 has been demonstrated to be fungicidal against fungal spores (Trichophyton mentagrophytes)

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not specified

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Directions

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

MDF-120

Model: DF120

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 info@deconsolutions.com
 Brian Kalamanka
 http://www.deconsolutions.com
 Modec brochure



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid—aqueous-based media germicidal

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: A proprietary and patented aqueous-based media containing emollients and moisturizers to protect the skin. Established as safe and effective with germicidal effect, it incorporates a unique species of oxidants that enhances the physical action of hydrophilic solubilization of materials that are sparingly soluble. It is nonflammable, biodegradable, and does not contain alcohol-based sanitizers. 651 mL (22 oz) spray bottles, 7.6 L (2 gal), and 18.9 L (5 gal) sets.
 Technology development: In response to the national initiative to combat terrorist threats, Sandia National Laboratories (SNL) under the DOE patented the Sandia Decon Formulation for the mitigation of warfare agents (U.S. Patent No. 6,566,574 B1). Modec, Inc., produces the Modec Decon Formulation Series (“MDF”) under its license with Sandia. MDF-120 is a safe and effective means for a decontamination wash of the skin that reduces the risk of cross contamination and transmission of pathogenic organisms.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: MDF-120 is the first nontoxic first-aid antiseptic specifically designed as a topical decontaminant for the skin. It reduces the transmission of pathogenic microorganisms to patients and personnel. A proprietary and patented aqueous-based media containing emollients and moisturizers to protect the skin. Established as safe and effective with germicidal effect, it incorporates a unique species of oxidants that enhances the physical action of hydrophilic solubilization of materials that are sparingly soluble. It is nonflammable, biodegradable, and does not contain alcohol-based sanitizers. Patented Skin Decon Kit: For topical application to the skin to prevent infection and to help prevent cross contamination.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Not specified

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Available in individual sized packets, 651 mL (22 oz) spray bottles, or 7.8 L (2 gal) and 18.9 L (5 gal) sets

Weight: Not specified

Power Requirements: None

LOGISTICS

Portability: Not specified

Consumables Required: The antiseptic

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Directions

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

MDF-200 Formula

Model: MDF-200

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Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid—H₂O₂ and quaternary ammonium

Unit Cost: \$35 per gal, \$25 GSA with approved volumes

Availability: Immediate

Current Users: Joint Services

Description: Conveniently packaged in a single unitized boxed configuration, MDF-200 is available in a 19 L (5 gal), 38 L (10 gal), 57 L (15 gal), 208 L (55 gal), 416 L (110 gal), and 1893 L (500 gal) “Quik-Sets” for easy shipping, handling, and use. This packaging includes all of the all-liquid components to rapidly produce stabilized pH MDF-200.

Decontamination Process: Chemical

Application

Equipment decontamination

Application Notes: Packaging includes all of the all-liquid components to rapidly produce stabilized pH MDF-200. Broad spectrum decontamination.

Testing: MARCORSSYSCOM

Sandia National Laboratories

OPERATIONAL PARAMETERS

Materials Decontaminated: Compatible with most materials

Chemical Agents: VX, mustard, G-series

Bio Agents: Anthrax, plague, viruses, and bacteria

TIMs:

- **High Hazard:** Wide range of TIMs including hydrogen cyanide, sodium cyanide, anhydrous ammonium, phosgene, and chlorine
- **Medium Hazard:** Wide range of TIMs
- **Low Hazard:** Wide range of TIMs

Rad/Nuc Materials: Not specified

Decontamination Solutions: Hydrogen peroxide and quaternary ammonium

Capacity Throughput: Variable, dependent on delivery devices

Set-up Time: Nominal

PHYSICAL PARAMETERS

Size: 19 L (5 gal), 37.9 L (10 gal), 56.8 L (15 gal), 208 L (55 gal), 416 L (110 gal), and 1893 L (500 gal)

Weight: 4.1 kg/3.79 L (9 lb/gal)

Power Requirements: Not applicable

LOGISTICS

Portability: Depends on size

Consumables Required: Not applicable

Maintenance Required: Not applicable
Maintenance Cost: Not applicable
Use/Reuse: Not applicable
Shelf Life: 3 yr
Storage Conditions: Warehouse <40 °C (104 °F)
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: MDF-200 can be shipped without restrictions

GENERAL

Sandia Decon Formulation DF200

Model: DF200

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 Modec brochure



Status: The vendor has responded—6/29/2006

Category: **Commercial Decontaminant**
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: In response to a national initiative to combat the domestic CB threat, Sandia national Laboratories (SNL) has developed Sandia Decon Formulation DF 200 for mitigation and decontamination of CB agents. Experimental results indicate that the formulation works quickly and does not generate toxic by-products.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Originally developed as DF100, the SNL formulation has been enhanced to achieve quicker decontamination efficacy over the broad range of both CB agents, many chemical toxins, and biological pathogens.

Testing: In SNL tests of Sandia Decon Formulation performance against CA agent simulants, half-lives for the decontamination of the simulants were on the order of minutes. Also, nuclear magnetic resonance (NMR) studies demonstrated that destruction of the CA simulants occurred without formation of potentially toxic by-products. The simulant test results were confirmed by a facility licensed to perform live CA testing. In liquid solution tests, DF200 achieved complete neutralization of CAs within minutes. Because of their high toxicity, common transport across U.S. highways and high availability, many toxic industrial chemicals are considered by the FBI to be a higher threat for terrorist use than conventional weapons of mass destruction. Sandia has developed a small suite of modified DF200 formulations that are highly effective at neutralizing most classes of toxic industrial chemicals. Malathion, sodium cyanide, butyl isocyanate, and carbon disulfide were analyzed in solution; headspace analyses were conducted for hydrogen cyanide, phosgene, chlorine, and ammonia. Results obtained both at SNL and at Southwest Research Institute (San Antonio, Texas).

A SNL-based formulation has also been shown to completely inactivate Bovine Corona Virus (BCV), the internationally recognized surrogate for Severe Acute Respiratory Syndrome (SARS). Four biological agent simulants were used in SNL tests of DF200 decontamination performance: Bacillus atrophaeus (a simulant for anthrax spores), Erwinia herbicola (a simulant for vegetative bacterial cells), and MS-2 and T-4 bacteriophages (both simulants for viruses). Highly effective simulant test results of a 7-log kill within 15 min were confirmed by a facility licensed to perform live agent testing of two different strains of a live anthrax agent and the plague bacterium. In a solution test (i.e., the spores were added to the formulation), a 7-log kill of both live anthrax and plague bacterium was achieved during a 15-minute exposure period to DF200.

OPERATIONAL PARAMETERS

Materials Decontaminated: The formulation has been shown to be efficacious on a wide variety of material surfaces including those with organic loads and biofilms

Chemical Agents: HD, GD, and VX

Bio Agents: Anthrax, viruses, plague bacterium, and SARS

TIMs:

- **High Hazard:** Hydrogen cyanide, carbon disulfide, phosgene, and chlorine
- **Medium Hazard:** Not specified

• **Low Hazard:** Not specified
Rad/Nuc Materials: Not specified
Decontamination Solutions: Not specified
Capacity Throughput: Not specified
Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified
Weight: Not specified
Power Requirements: Not specified

LOGISTICS

Portability: Not specified
Consumables Required: Not specified
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

12v Tac-Pac
Model: Tac-Pac

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Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—backpack

Unit Cost: \$1150
Availability: Not specified
Current Users: Not specified

Description: In response to the specialized needs of the Special Ops groups and other technical users, Modec developed the 12 V “Tac-Pac” delivery device. Compact and lightweight, this system can be easily mobilized. Connect the suction line of the system into premix containers or backpack supply of the decontaminant. Mix according to directions and use within 8 h for optimum results. MDF-200 should be applied at a rate of 0.5 L (0.13 gal) of liquid per m² of contaminated surface based upon NATO assumptions of 10 g (0.35 oz) of agent per m².

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: The Modec 12 V “Tac-Pac” is a lightweight means of pumping large amounts decontaminant and fresh rinse virtually anywhere

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia foam products

Capacity Throughput: Can deliver up to 492 L (130 gal) at 3.5 gpm at 40 psi on one charge

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 17.8 cm x 25.4 cm x 27.9 cm (7 in x 10 in x 11 in)

Weight: 5 kg (11 lb)

Power Requirements: 12 V NiCad battery or vehicle 12 V power source

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: The unit is housed in a durable plastic case with stainless steel standoff and control panel

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Hose and sprayer

Applicable Regulations: Yes

GENERAL

ATD-5F Portable CAF Device

Model: ATD-5F CAF

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 Brian Kalamanka
 http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid

Unit Cost: \$1450

Availability: Not specified

Current Users: Not specified

Description: In response to the specialized needs of the warfighter and first responders, Modec developed the ATD-5F CAF system. Compact and lightweight. Powder coated OD Green. Can draft water or other liquids. Adjustable expansion rate and adjustable delivery nozzles. Can use multiple decon supply sources without having to fill tanks first. Low manpower requirement, wheeled unit does not have to be carried on the back and is easy to move and use.

CAF pump: Air diaphragm, motive flow inducted (adjustable), rated @ 5 gpm

Nozzles: smooth bore and fan spray

Operating air pressure: 100 psi, 6.9 bar

Cylinder pressure: 2215 psi to 4500 psi

Air source: SCBA, vehicle, or other compressed air source generating approximately 60 psi/min

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Can be easily mobilized in any vehicle and rapidly deployed in the field under adverse conditions

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia Foam products from Modec, Inc., authorized licensee

MDF-200 or other liquid decon products ranging in size from 19 L (5 gal), 38 L (10 gal), 57 L (15 gal), 114 L (30 gal), and 208 L (55 gal) sets. Foam expansion: Up to 25:1.

Capacity Throughput: Up to 12.2 m (40 ft) projection

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 711 cm x 51 cm x 28 cm (28 in x 20 in x 11 in) folded; 122 cm (48 in) high unfolded; 28 cm (11 in) pneumatic tires

Weight: 16.8 kg (37 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Easily mobilized in any vehicle or on a cart

Unit can be deployed into operating position rapidly by a single person

Consumables Required: Decontaminant. Can use multiple compressed air sources including SCBA bottles, on-board vehicle air, or other sources.

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Hose and nozzle

Applicable Regulations: Not specified

GENERAL

CAF Tac-Pac
Model: CAF Tac-Pac

Modec, Inc.
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Brian Kalamanka
http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—compressed air foam

Unit Cost: \$1250

Availability: Not specified

Current Users: Not specified

Description: The Modec CAF (Compressed Air Foam) “Tac-Pac” is a lightweight means of providing highly stable foam at variable expansion rates for decon operations. This unit can draw decontaminants and even fresh water from virtually any container including drums.

1. Will operate on any compressed air source including SCBAs.
2. Suction and output lines connect easy to marked ports.
3. 2.4 m (8 ft) delivery hose with trigger smooth bore attachment delivers foam long distances.
4. Fan tip can be easily added.
5. Will draw from virtually any source.
6. Adjustable foam expansion provides greater capability.
7. Includes integral regulator.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: This unit can draw decontaminants and even fresh water from virtually any container including drums. MDF-200 is recommended to be applied at an expansion rate of 8:1 and at a rate of 1 L (0.26 gal) of liquid per 2 m² (2.4 yd²) of contaminated surface based upon NATO assumptions of 10 g (0.35 oz) of agent per sq meter

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia foam decons

Capacity Throughput: The unit will throw foam up to 9 m (30 ft) in distance, up to 6.1 m (20 ft) vertically with a maximum flow of 26.5 L/min (7 gal/min)

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 17.8 cm x 25.4 cm x 27.9 cm (7 in x 10 in x 11 in)

Weight: 6.8 kg (15 lb)

Power Requirements: Any compressed air source

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Unit is housed in a corrosion resistant durable plastic case with stainless steel standoff and control panel.

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Hose and sprayer

Applicable Regulations: Not specified

GENERAL

FI-25

Model: FI-25

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Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—handcart

Unit Cost: \$1350

Availability: Not specified

Current Users: Not specified

Description: Modec's FI-25 is a 95 L (25 gal) unit. The handcart unit provides for substantial volumes of decontaminant and is ergonomically designed with four wheels for safer transport and ease of lift. This unit can be produced in any color including black for larger orders. The FI-25HP is retrofitted to operate from SCBA air bottles.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Already in military service around the world, this portable foam system produces variable expansion foam (including 100 % liquid). Easy to operate and maneuver, this unit projects foams with excellent stability great distances from its standard 9 m (30 ft) hose. Its one-piece spare part replacement insures insignificant repair and service downtime.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia foam products

Capacity Throughput: Not specified

Set-up Time: Can be filled with 95 L (25 gal) of solution in 2 min

PHYSICAL PARAMETERS

Size: 51 cm x 66 cm x 89 cm (20 in x 26 in x 35 in)

Weight: 24.9 kg (55 lb) empty

Power Requirements: Not specified

LOGISTICS

Portability: Handcart unit on wheels

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

FI-25HP

Model: FI-25HP

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Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—handcart

Unit Cost: \$1.35K

Availability: Not specified

Current Users: Not specified

Description: The FI-25HP is retrofitted to operate from SCBA air bottles. Modec's FI-25HP is a 95 L (25 gal) unit. The handcart unit provides for substantial volumes of decontaminant and is ergonomically designed with four wheels for safer transport and ease of lift. This unit can be produced in any color including black for larger orders. Level indicators are incorporated into tank. Four wheels, with two separate lifting positions. Heavy-duty tires and axles for rough terrain use; 9.1 m (30 ft) hose with foam nozzle with 15° fan tip; 20 cm (8 in) diameter fill port insures rapid solution filling. Standard air port for alternative sources of air. Integral drain port. Well labeled operating panel. Retrofitted for two 9 L SCBA high pressure air bottles. Includes Tescom High Pressure Regulator.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: The FI-25HP provides the highest flow rate for any air pump of comparable size. Stall-proof design with patented shuttle valve. Robust design is highly chemical resistant. Operates quietly with internal exhaust muffler incorporated into the unit. The specially designed system inducts air into the liquid motive flow to generate foam. This output, which can be all liquid, can be adjusted to generate varying expansion rates of foam. Expansion rates then can be calibrated and indicted on the dial located on the exterior of the panel.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia foam products

Capacity Throughput: Not specified

Set-up Time: Can be filled with 95 L (25 gal) of solution in 2 min

Eliminates the need for "dosage" or mixing system

PHYSICAL PARAMETERS

Size: 51 cm x 66 cm x 89 cm (20 in x 26 in x 35 in)

Weight: 24.9 kg (55 lb) empty

Power Requirements: Not specified

LOGISTICS

Portability: Handcart unit on wheels

Consumables Required: Decontaminant

Maintenance Required: The Modec FI-25HP features a one piece panel that literally functions as the single repair item, in essence, a single spare part. It is easily removed, then replaced. This reduces support costs, downtime, and warranty follow-up. The heavy-duty panel is well labeled. The panel is affixed to bolt receivers that are actually molded into the tank giving it tremendous strength and durability. It also accepts alternative sources of compressed air.

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: One-piece, rotationally molded plastic (Linear low density polyethylene). Seamless, lightweight and virtually indestructible. Heavy-duty tires and axles for rough terrain use.

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: High pressure air cylinder for the FI-25HP (Luxfer Composite L87A)

High pressure regulator for the FI-25HP (Modec installs Tescom BB-1 Series Piston Sensed high pressure reducing regulators.)

High pressure valve (Ceodeux C21000093)

High pressure gauge

Low pressure regulator

9 L (9.5 qt) bottle

Applicable Regulations: Not specified

GENERAL

Flex-A-Lite
Model: 2600

Modec, Inc.
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 Brian Kalamanka
 http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: **Delivery**
Type: Liquid—fogger

Unit Cost: \$496
Availability: Not specified
Current Users: Not specified

Description: Flex-A-Lite 2600 fogger is designed to produce a range of spray droplets, from ULV (20 μ) to a mist (50 μ and larger). This handheld fogger has an 46 cm (18 in) extension hose that makes it the perfect tool for spot application of ULV or mist sprays in food preparation or storage facilities. The quiet two-stage motor and the 3.8 L (1 gal) capacity make this fogger the choice of professionals around the world.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Spot application of ULV or mist sprays in food preparation or storage facilities

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Not specified

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: Motors are available in either 100 V/60 Hz or 220/240V

LOGISTICS

Portability: Not specified

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Tanks are rotationally molded for maximum strength

All tanks are 1-1/2 gallon capacity with 3-1/2" wide tank openings and low profile for stability

Entire unit is made of corrosion resistant materials for use with many chemicals

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

MDF LSA-100 Sprayer

Model: LSA-100

Modec, Inc.
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 800-967-7887 (Tel)
 303-373-2696 (Tel)
 303-373-2699 (Fax)
 info@deconsolutions.com
 Brian Kalamanka
 http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—sprayer

Unit Cost: \$35

Availability: Not specified

Current Users: Not specified

Description: DSL 100 custom dual-liquid fixed-ratio sprayer is designed to spray two liquids at the same time at a predetermined, fixed dilution ration. MDF-100 is available in a unique two-chamber pump spray unit that is easy to apply and reuse. MDF is the revolutionary new decontaminant that destroys the full range of CB agents. MDF is currently being deployed by DoD as the CB decontaminant replacing DS-2 and Super Topical Bleach (STB). MDF was developed by Sandia National Laboratories and is manufactured under license to MODEC, Inc.

Destroys CB agents

Can be rapidly deployed—an ideal first-response decontaminant

Nontoxic to people; nondamaging to property; noncorrosive

SNL testing confirms 7-log kill for biological and viral agents

Available in a variety of forms, including foam, gel, liquid, fog, aerosol, or powder

Produces no toxic by-products—decomposes to oxygen and water

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: MDF-100 is available in a unique two-chamber pump spray unit that is easy to apply and reuse. MDF Decontaminant can be dispensed through specially designed dual-liquid sprayers that are extremely versatile and convenient. Modec's formulation is dispensed at a predetermined, fixed dilution ratio with the binary catalyst solution making it an excellent methodology for delivering the two-part reactive decontamination mixture. Modec's MDF Formula is specifically compounded so it can be used multiple times (versus one time use) without pre-mixing or adding water. The combined amount of over (22 oz) of decontaminant provides an extensive amount of decontaminant and is excellent for use in medical situations, vehicles, aircraft, ambulances, and any emergency response situation where decontamination and protection is required immediately. The twin (11 oz) polyethylene bottles are easily locked into place and can be removed to store and protect the solutions for an extended period of time.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Destroys CB agents

Chemical Agents: Destroys CB agents

Bio Agents: 7-log kill for biological and viral agents

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: MDF 100. Available in a variety of forms, including foam, gel, liquid, fog, aerosol, or powder.
Capacity Throughput: Not specified
Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified
Weight: Not specified
Power Requirements: Not specified

LOGISTICS

Portability: Not specified
Consumables Required: Not specified
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Modec's MDF Formula is specifically compounded so it can be used multiple times (versus one time use) without pre-mixing or adding water
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Produces no toxic by-products—decomposes to oxygen and water
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

MicroFogger
Model: MicroFogger

Modec, Inc.
4725 Oakland Street
Denver, Colorado 80239
800-967-7887 (Tel)
303-373-2696 (Tel)
303-373-2699 (Fax)
info@deconsolutions.com
Brian Kalamanka
http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid—fogger

Unit Cost: \$32
Availability: Not specified
Current Users: Not specified

Description: Modec's MicroFogger kit can be used to deploy MDF in consumer applications for mold and disinfection applications. The MicroFogger can dispense the formulation as a room deodorizer or directly to wet areas for surface disinfecting.

Fully self-contained modules
Hand-held units include propellant
Highly durable construction
Delivers fine ULV droplets
Uses Sandia Foam Products from Modec, Inc., Authorized Licensee
Low manpower requirement - easy to mix and apply by one person
Uses LSA-100 Cartridge system

Decontamination Process: Chemical (neutralizes decontaminant)

Application

Equipment decontamination

Application Notes: Used to deploy MDF in consumer applications for mold and disinfection applications. Modec, Inc. can supply a field usable sensitive equipment decontamination applications that can be used to decontaminate the interior of vehicles and other specialized equipment. Compact and lightweight, these proven COTS unit can be used to generate ULV (Ultra Low Volume) cold decon fog from the same MDF formulation used for surface decon.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Biologicals

Chemical Agents: Not applicable

Bio Agents: Mold

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Sandia foam products

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified
Weight: Not specified
Power Requirements: Not specified

LOGISTICS

Portability: Man portable
Consumables Required: Decontaminant
Maintenance Required: Not specified
Maintenance Cost: Not specified
Use/Reuse: Not specified
Shelf Life: Not specified
Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Tactical Backpack 4000-BP-B

Model: 4000-BP-B

Modec, Inc.
 4725 Oakland Street
 Denver, Colorado 80239
 800-967-7887 (Tel)
 303-373-2696 (Tel)
 303-373-2699 (Fax)
 info@deconsolutions.com
 Brian Kalamanka
 http://www.deconsolutions.com



Status: The vendor has responded—6/29/2006

Category: Delivery
Type: Liquid

Unit Cost: \$210

Availability: Not specified

Current Users: Not specified

Description: Modec has developed a unique, nonpowered, backpack for field decon applications. Economical, compact, and lightweight, this system does not require any outside fuel or energy source such as SCBA's to operate, making it ideal for field use. Being manually powered, it can be utilized continuously and dispense decon fluid or fresh rinse. These units can be easily transported in vehicles and rapidly deployed without the need for outside energy sources such as compressed air, gasoline or electricity. These units, which contain ~19 L (5 gal) are compact, easily filled, and dispense MDF-200 via a black hand pump and foaming tip.

Color: Black (OD green optional)

Nozzles: Smooth bore, foam tip

Hoses: 1 x discharge

Foam device: Specialized foam nozzle

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Ideal for field use. Being manually powered, it can be utilized continuously and dispense decon fluid or fresh rinse.

Modec's backpack system does not require SCBA bottles, which are heavy for users and difficult to service in the field. Optional dual tank backpack can be preloaded so that there is no field filling of decontamination fluids in the field. This affords the warfighter with rapid decon capabilities.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents

Chemical Agents: All known

Bio Agents: All known

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: MDF-200 or other liquid decon products ranging in size from 5 gal, 10 gal, 15 gal, 30 gal, and 55 gal sets. Foam expansion: Up to 10:1.

Capacity Throughput: Capacity: 5 gal (19 L)

The pump unit is manually operated and creates consistent foam that has up to a 9 m (30 ft) throwing distance

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 61 cm x 46 cm x 10 cm (24 in x 18 in x 4 in)

Weight: 0.91 kg (2 lb)

Power Requirements: Manually powered

LOGISTICS

Portability: Highly portable and easily handled

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Hose, nozzle, and hand pump

Applicable Regulations: Not specified

GENERAL

FAST-ACT**Model:** FA15-0500, FA15-1000, FA15-2000, FA15-4000, FA15-5000

NanoScale Materials, Inc.
 1310 Research Park Dr.
 Manhattan, Kansas 66502
 785-537-0179 (Tel)
 877-327-8228 (Tel)
 785-537-0226 (Fax)
 Kyle Nappenburger
 kbk@nanoactive.com
<http://www.NanoActive.com>
<http://web www.FAST-ACT.com>
 NanoScale brochure

**Status:** The vendor has responded—7/28/2006

Category: **Commercial Decontaminant**
Type: Sorbent—chemical only

Unit Cost: \$95—shaker
 \$295—1 kg (2.2 lb)
 \$455—2 kg (4.4 lb)
 \$695—4 kg (8.8 lb)
 \$595—5 kg (11 lb)
Availability: In stock
Current Users: Not specified

Description: FAST-ACT is a portable decontamination system for immediate response to a broad range of chemical hazards
Decontamination Process: Chemical

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: FAST-ACT is a revolutionary chemical hazard containment and neutralization system effective against a broad range of TICs with the added capability to destroy CAs.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CAs and TICs**Chemical Agents:** GD, VX, and HD**Bio Agents:** Not applicable**TIMs:**

- **High Hazard:** Hydrogen chloride, hydrogen cyanide, nitric acid, sulfur dioxide, sulfuric acid, anhydrous ammonia, chlorine, and ethylene oxide
- **Medium Hazard:** Nitrogen dioxide and methyl mercaptan
- **Low Hazard:** Chloroacetyl chloride, toluene, and parathion

Rad/Nuc Materials: None**Decontamination Solutions:** Decontaminating sorbent**Capacity Throughput:** Can neutralize in 2 min**Set-up Time:** Ready to use. No set-up time required.

PHYSICAL PARAMETERS

Size: 10 cm x 10 cm x 22 cm (4 in x 4 in x 8.5 in) to 19 cm x 20 cm x 60 cm (7.5 in x 8 in x 23.5 in)**Weight:** 0.77 kg to 11.5 kg (1.7 lb to 25.3 lb)**Power Requirements:** No power requirements

LOGISTICS

Portability: Single person, hand-held portable**Consumables Required:** None

Maintenance Required: No requirements. Recommend monthly inspections for pressure in cylinders.

Maintenance Cost: Not applicable

Use/Reuse: Use until neutralizing agent consumed. Cannot be reused.

Shelf Life: 5 yr

Storage Conditions: Recommend temperature -40 °C to 49 °C (-40 °F to 120 °F)

Durability: Not specified

Environmental Conditions: Can work below freezing

Environmental Considerations: Nontoxic

Resources: Each unit requires only one individual to operate

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by the manufacturer

Operator Training Required: <8 h not provided by the manufacturer

Training Available: Presentations can be provided by the manufacturer

Manuals Available: Manuals included and available

Support Equipment: None

Applicable Regulations: FACT-ACT pressurized cylinders

GENERAL

All-Clear

Model: Not specified

National Foam, Inc.
 150 Gordon Drive
 Exton, Pennsylvania 19341
 610-363-1400 (Tel)
 610-524-9073 (Fax)
 Michael G. Mulcahy
 860-284-3182 (Tel)
 860-839-2810 (Cell)
 860-660-3293 (Fax)
 703-926-4343 (Cell)
 michaelgmulcahy@gmail.com
 http://www.Kidde-Fire.com
 http://www.all-clear.com



Status: The vendor has not responded

Category: **Commercial Decontaminant**
 Type: Liquid—foam enzyme and biocide

Unit Cost: Not specified
 Availability: Not specified
 Current Users: Not specified

Description: All-Clear is a specially formulated decontamination foam solution that is both enzyme and biocide foam based
Decontamination Process: Chemical (neutralizes decontaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: All-Clear is a premixed foam solution, it can be deployed very quickly and efficiently with a wide range of existing equipment and devices.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified**Chemical Agents:** GB, GD, GA, GF, and VX**Bio Agents:** SARS, Avian Flu, Foot and Mouth Disease, Anthrax, Brucellosis, Cholera, Glanders, Melioidosis, Plague, Tularemia, Typhoid, typhus, Q Fever, viruses, toxins**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Not specified**Capacity Throughput:** Not specified**Set-up Time:** Not specified

PHYSICAL PARAMETERS

Size: Not specified**Weight:** Not specified**Power Requirements:** Not specified

LOGISTICS

Portability: Not specified**Consumables Required:** Not specified**Maintenance Required:** Not specified**Maintenance Cost:** Not specified

Use/Reuse: Not specified

Shelf Life: 5 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: 2 °C to 65 °C (35 °F to 150 °F)

Environmental Considerations: Should not be allowed to enter groundwater or water supply, can be treated if necessary

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Not specified

Applicable Regulations: Can be airlifted

GENERAL

Decon-Shield
Model: NKSPDS005

Nor E First Response, Inc.
3890 Hammer Drive
PO Box 30888
Bellingham, Washington 98226-7629
866-380-8455 (Tel)
360-738-6467 (Tel)
360-738-8043 (Fax)
Jesse McCall
sales@nor-e.com
http://www.nor-e.com
Nor E First Response pamphlet
Status: The vendor has responded—10/4/2006

Unit Cost: \$315 for single kit (10 U.S. gal); \$2.2K for bulk (2000 U.S. gal)
Availability: No longer available from Nor E
Current Users: Not specified

Category: Commercial Decontaminant**Type:** Liquid—biocide**Description:** Decon-Shield comes in concentrate used as hyper-wetting fog or spray, destroys all BW organisms including weapons grade anthrax, and all other single celled organisms such as Golden Staph, Klebsiella, fungi, and viruses, etc., via a minute positive charge**Decontamination Process:** Mechanical decontamination

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Personnel and thorough decontamination in hospitals

Equipment decontamination—CBR hardened items, non-CBR hardened items, sensitive items

Infrastructure—confined spaces, open areas, and soil/terrain. Also vehicles, machinery, and vegetation.

Testing: Battelle Memorial Institute (Decon-Shield and 5 % HTH were effective in reducing viable B. anthracis Ames spores where both exhibited log reductions of >8.09")

U.S. Army Dugway Proving Grounds [Decon-Shield effectively killed wet or dried anthracis simulant)

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents**Chemical Agents:** Sulfur mustard**Bio Agents:** All BA organisms including weapons grade anthrax, and all other single celled organisms such as Golden Staph, Klebsiella, fungi, viruses, bacterial spores, and toxins, etc. Because it is mechanical action that kills micro-organisms, they cannot mutate into resistant forms of the biocide, even after prolonged use of the biocide.**TIMs:**

- **High Hazard:** None
- **Medium Hazard:** None
- **Low Hazard:** None

Rad/Nuc Materials: None**Decontamination Solutions:** Noncorrosive, biodegradable bactericide, fungicide, and sporicide. Decon-Shield contains a hyper wetting agent, 100 times wetter than water, to rapidly break the surface tension of cell membranes and bio film to deliver the active biocide.**Capacity Throughput:** 20 L (5.28 USG) of product covers 600 m² (718 m²) or 4000 m³ (5232 yd³) of general air space. Completely neutralizes Type A Botulinum in 60 s.**Set-up Time:** Not specified

PHYSICAL PARAMETERS

Size: 46 cm x 46 cm x 30 cm (18 in x 18 in x 12 in) for 1 kit (box)

Weight: 6.8 kg (15 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Handheld

Consumables Required: Decontaminant

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Cannot be cleaned and reused

Shelf Life: Decontaminate ≥ 1 yr. When mixed ready to use, the solution remains fully effective for 7 d.

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Safe to use, nonflammable and chemically stable. Contains no heavy metals or pesticides.

Resources: Kit can be prepared by a single responder

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: No training required

Operator Training Required: No training required

Training Available: Not specified

Manuals Available: Manuals are available

Support Equipment: Not specified

Applicable Regulations: All products are DOT compliant

GENERAL

MEDecon Shelter**Model:** MPS-LG

Nor E First Response, Inc.
 3890 Hammer Drive
 PO Box 30888
 Bellingham, Washington 98226-7629
 866-380-8455 (Tel)
 360-738-6467 (Tel)
 360-738-8043 (Fax)
 Jesse McCall
 sales@nor-e.com
 http://www.nor-e.com
 Nor E First Response pamphlet



Ambulatory

Non-Ambulatory

Status: The vendor has responded—10/4/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$4.2K to \$15.1K**Availability:** In stock, requires less than 30 d lead time, minimum order quantity is one unit. Can use purchase order, credit card, contract, or other.**Current Users:** Not specified**Description:** Self-contained, multi-lane, multi-stall systems (undress/shower/rinse/redress). All units come with an optional convertible nonambulatory unit (easily converted for ambulatory and assisted decontamination). All units can interconnect with each other, or trailers, or facilities to add capacity.**Decontamination Process:** Chemical

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Personal, expedient and thorough decontamination for self/buddy, mass casualty, and hospital. Also vehicles, machinery, and vegetation**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN**Chemical Agents:** Yes**Bio Agents:** Yes**TIMs:**

- **High Hazard:** Yes
- **Medium Hazard:** Yes
- **Low Hazard:** Yes

Rad/Nuc Materials: Yes**Decontamination Solutions:** Not specified**Capacity Throughput:** Estimated 2 min per casualty per shower stall (multi-stall models listed in description)**Set-up Time:** Model specific set-up/tear-down instructions are included with every product manual. Product manuals are available at www.nor-e.com.

PHYSICAL PARAMETERS

Size: Tech-Decon Center: 3 m x 6 m (10 ft x 20 ft)

MPS-LG: 3 m x 6 m (10 ft x 20 ft)

Decon Center 1x1A: 1.5 m x 1.5 m (5 ft x 5 ft)

Decon Center 2x2: 2.4 m x 2.4 m (8 ft x 8 ft)

Decon Center 2x4A: 3 m x 6 m (10 ft x 20 ft)

Decon Center-NA: 2.4 m x 2.4 m (8 ft x 8 ft)

Height is adjustable to 2.9 m (9 ft 6 in)

Weight: Each shelter weighs 57 kg (125 lb) as a complete kit

Power Requirements: Systems come with propane or diesel mechanical

LOGISTICS

Portability: Easily portable

Consumables Required: Consumables listed in model manual; dependent on model

Maintenance Required: Listed in product manual

Maintenance Cost: Not specified

Use/Reuse: Cleaning instructions listed in all product manuals. Procedures are available to decontaminate the apparatus.

Shelf Life: >/=5 yr

Storage Conditions: Not specified

Durability: All products are designed as durable and all-terrain

Environmental Conditions: All products are wind/weather durable; extreme tropical and cold weather packages are available

Environmental Considerations: All products are designed/supplied per customer specifications. Tropical units come with galvanized frames; winterized units come with heat-trace and insulation; hazardous waste tanks are RF welded and can be used to below 24 °C (76 °F).

Resources: Operable in under 10 min by a two responders

Warranty: 1 yr standard warranty. Extended warranty is available.

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Nor E provides 1 d onsite training. Nor E 1 d training is two-part: 1) for engineering/maintenance team and 2) for responder/deployment team

Manuals Available: Manuals, CD's and web-site instruction are available

Support Equipment: Not specified

Applicable Regulations: All products are DOT compliant

GENERAL

Decon Now (Full-Body Wash Towel)

Model: NKSPIC035

Nor E First Response, Inc.
 3890 Hammer Drive
 PO Box 30888
 Bellingham, Washington 98226-7629
 866-380-8455 (Tel)
 360-738-6467 (Tel)
 360-738-8043 (Fax)
 Jesse McCall
 sales@nor-e.com
 http://www.nor-e.com



Status: The vendor has responded—10/4/2006

Category: Accessory
Type: Containment (towel)

Unit Cost: \$1.66 each

Availability: In stock, requires less than 30 d lead time, minimum order quantity of 100 towels. Can use purchase order, credit card, contract, or other.

Current Users: Not specified

Description: Decon Now (full-body wash towel) is a full-body size 30 cm x 76 cm (12 in x 30 in) towel to clean from head to toe. Made from nonwoven fabric, 45 % polyester, 55 % cellulose. The solution used is Provon body wash, which is nontoxic, alcohol, and hypo-allergenic.

Decontamination Process: Chemical and physical decontamination

Application

Personnel decontamination

Application Notes: Personnel, expedient decontamination, for self/buddy, mass casualty, and hospital

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Provon body wash, which is nontoxic, alcohol, and hypo-allergenic

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 30 cm x 76 cm (12 in x 30 in)

Weight: 28 g (1 oz) each

Power Requirements: Not applicable

LOGISTICS

Portability: Handheld

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Cannot be cleaned and reused

Shelf Life: >/=3 yr

Storage Conditions: Not specified

Durability: All products are designed as durable

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not applicable

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Manuals are available

Support Equipment: Not specified

Applicable Regulations: All products are DOT compliant

GENERAL

IDEcon (Pre and Post) Personal Care and Identity Kit

Model: NKSPI0100

Nor E First Response, Inc.
 3890 Hammer Drive
 PO Box 30888
 Bellingham, Washington 98226-7629
 866-380-8455 (Tel)
 360-738-6467 (Tel)
 360-738-8043 (Fax)
 Jesse McCall
 sales@nor-e.com
 http://www.nor-e.com



Status: The vendor has responded—10/4/2006

Category: Accessory
Type: Kit (decontamination agent)

Unit Cost: \$12.22 each

Availability: In stock, requires less than 30 d lead time, minimum order quantity of 14 boxes of 25 kits. Can use purchase order, credit card, contract, or other.

Current Users: Not specified

Description: IDEcon kit contains two large antimicrobial facecloths to clean exposed skin cream 30 cm x 46 cm (12 in x 18 in). The IDEcon Kit can be used in every decontamination operation with any decontamination system Bilingual (English/Spanish) text combined with pictograms provide easy-to-read instructions. A barcoded identity bracelet linked to barcoded personal effects bags allow traceability of personal belongings. One-size-fits-all sky blue modesty redress gown with sewn sides provides privacy.

Decontamination Process: Chemical and physical decontamination

Application

Personnel decontamination

Application Notes: Personal, expedient decontamination, for self/buddy, mass casualty, and hospital. The IDEcon provides secure storage, identification, and traceability for a victim's belongings during the decontamination process. The IDEcon Kit can be used in every decontamination operation with any decontamination system.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: Not specified

Bio Agents: Not specified

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Not specified

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Each box of 25 is 64 cm x 64 cm x 33 cm (25 in x 25 in x 13 in)

Weight: Each box of 25 weighs 9.9 kg (22 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Handheld

Consumables Required: Resealable valuables bag

Contaminated clothing bag

Redress poncho, sloppers, and three disposable towels

Barcoded red identity bracelet for traceability of personal belongings

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Cannot be cleaned and reused

Shelf Life: ≥ 5 yr

Storage Conditions: Not specified

Durability: All products are designed as durable

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not applicable

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Manuals are available

Support Equipment: Not specified

Applicable Regulations: All products are DOT compliant

GENERAL

Spilfyter
Model: Spilfyter Brand

NPS Corporation
 3303 Spirit Way
 Green Bay, Wisconsin 54304
 800-558-5066 (Tel)
 920-983-9223 (Tel)
 920-983-9291 (Fax)
 Shirlene Otto
 sotto@npscorp.com
 http://www.npscorp.com



Status: The vendor has responded—9/5/2006

Category: **Accessory**
Type: Containment (containment, sorbents)

Unit Cost: Available through authorized distributors, or sold to government entities directly. Contact manufacturer for more information.

Availability: Available through authorized distributors, or sold to government entities directly with 2 d to 5 d lead times. In stock. Contact manufacturer for more information.

Current Users: Spilfyter sorbents are used across the country and internationally by industrial distributors and government entities. Contact manufacturer for appropriate NSN's that meet the commercial item description for a variety of sorbent materials.

Description: Polypropylene absorbent materials used to contain liquid spills

Decontamination Process: Physical (removes contaminant or contains spilled liquids)

Application

Infrastructure decontamination

Application Notes: Use for quick hazmat response to contain and absorb spilled liquids them before they migrate

Testing: Through internal testing procedures, sorbents absorb up to 12 times their weight in liquid; test results vary due to viscosity of the liquid being sorbed and other external conditions. Contact manufacturer for quality control department.

OPERATIONAL PARAMETERS

Materials Decontaminated: Oil only sorbents absorb hydro-carbon based liquids only; universal and hazmat sorbents absorb most liquids

Chemical Agents: Not known; sorbents contain and absorb liquids but take on the characteristics of the liquid sorbed

Bio Agents: None

TIMs:

- **High Hazard:** Sorbents absorb and contain spilled liquids
- **Medium Hazard:** Sorbents absorb and contain spilled liquids
- **Low Hazard:** Sorbents absorb and contain spilled liquids

Rad/Nuc Materials: Sorbents absorb and contain spilled liquids

Decontamination Solutions: Not applicable

Capacity Throughput: Sorbents quickly absorb and contain spilled liquids—up to 12 times the weight of the sorbent material can be sorbed, i.e. a case of sorbent pads 40 cm x 46 cm (16 in x 18 in) x 100 pads can absorb up to 91 L (24 gal) of spilled liquid

Set-up Time: Immediately—toss down for immediate absorption

PHYSICAL PARAMETERS

Size: Varies by product

Weight: < 14.5 kg (32 lb) per case

Power Requirements: None

LOGISTICS

Portability: Easily portable—< 14.5 kg (32 lb) per case

Consumables Required: None required

Maintenance Required: None required

Maintenance Cost: None required

Use/Reuse: Sorbents can be wrung out and re-used; however, they take on the characteristics and odor of the liquid absorbed

Shelf Life: Polypropylene can last for several years with no decomposition

Storage Conditions: No specific requirements

Durability: Polypropylene is very durable; no special handling required

Environmental Conditions: Not specified

Environmental Considerations: Oil only sorbents absorb hydro-carbon based liquids only; universal and hazmat sorbents absorb most liquids. Detergents or surfactants can break down the surface molecules of “oil only” sorbents, causing them to take on water.

Resources: Use PPE in accordance with the application

Warranty: 100 % money-back guarantee for product failure

SPECIAL PARAMETERS

Operator Skills Required: None. Should be familiar with hazmat or chemical response practices, and should be aware of local, state, and federal regulations regarding disposal of used sorbents.

Operator Training Required: None. Should be familiar with hazmat or chemical response practices, and should be aware of local, state, and federal regulations regarding disposal of used sorbents.

Training Available: None. Contact manufacturer for technical assistance if needed.

Manuals Available: None. MSDS data is available at www.npscorp.com.

Support Equipment: No support equipment. MSDS data is available at www.npscorp.com.

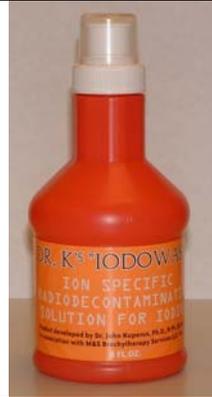
Applicable Regulations: Dispose of used sorbents in accordance with local, state, and federal regulations

GENERAL

Iodowash

Model: Wash

Radiation Decontamination Solutions, LLC
 101A Dunbar Ave.
 Oldsmar, Florida 34677
 813-854-5100 (Tel)
 813-854-5120 (Fax)
 info@RadDecon.com
 Bruno Schmidt
 bschmidt@raddecon.com
 http://www.raddecon.com



Status: The vendor has responded—6/15/2006

Category: **Commercial Decontaminant**

Type: Liquid—aqueous ion specific

Unit Cost: \$45 plus \$15 shipping and handling

Availability: Not specified

Current Users: Homeland security and nuclear power plants

Description: Quick Decon™ Mass Effect Solution H (Halogens) MSDS No. 77101. Iodowash decontaminates by chemically binding the radioactive halogen to a small sphere (0.6 mm to 1.2 mm) which can easily be wiped up. Typically a single use will remove up to 100 % of the contamination.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: Ideal for hospital I-131 therapy rooms. Iodowash (pat.pending) decontaminates all surfaces and is gentle enough for use on intact skin. Generally not hazardous in normal handling; however, good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.

Testing: Iodowash Test Report [M&S BRACHYTHERAPY SERVICES LLC (03/17/03)]

OPERATIONAL PARAMETERS

Materials Decontaminated: All nonporous materials and human skin

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Chemically designed to decontaminate I-131, I-125, and I-123, it is equally effective for F-18 and other halogens

Decontamination Solutions: Ion specific water based environmentally friendly solution

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Case of six 237 mL (8 oz) bottles

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: 5 yr or more

Storage Conditions: Freezing of full containers should be avoided. Expansion occurs at freezing temperatures and containers may burst.

Durability: No decomposition if used according to specifications

Environmental Conditions: Not specified

Environmental Considerations: Environmentally friendly solution. Products of decomposition and carbon monoxide and carbon dioxide

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Instructions included

Support Equipment: Not specified

Applicable Regulations: Not classified as hazardous under OSHA regulations

GENERAL

Emergency Rad Decon Kit

Model: Decon Kit

Radiation Decontamination Solutions, LLC
 101A Dunbar Ave.
 Oldsmar, Florida 34677
 813-854-5100 (Tel)
 813-854-5120 (Fax)
 info@RadDecon.com
 Bruno Schmidt
 bschmidt@raddecon.com
 http://www.raddecon.com



Status: The vendor has responded—6/15/2006

Category: **Commercial Decontaminant**
Type: Liquid—ion specific formulation

Unit Cost: \$300

Availability: Not specified

Current Users: Homeland security and nuclear power plants

Description: Ion specific formulation for decon of radioactive halogens, transition metals, and actinides. Color coded for easy selection. Contains no chlorine or fluorine.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: Environmentally friendly. Generally not hazardous in normal handling; however, good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.

Testing: Iodowash Test Report [M&S BRACHYTHERAPY SERVICES LLC (03/17/03)]

OPERATIONAL PARAMETERS

Materials Decontaminated: All nonporous materials and human skin

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Actinides and transition metals

Decontamination Solutions: Ion specific water based environmentally friendly solution

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Bulk sales available for each solution

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: 5 yr or more

Storage Conditions: Freezing of full containers should be avoided. Expansion occurs at freezing temperatures and containers may burst.

Durability: No decomposition if used according to specifications

Environmental Conditions: Not specified

Environmental Considerations: Environmentally friendly solution. Products of decomposition and carbon monoxide and carbon dioxide

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Included in kit

Support Equipment: Not specified

Applicable Regulations: Not classified as hazardous under OSHA regulations

GENERAL

Isolation Shelter**Model:** Isolation Shelter

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter**Type:** Multipurpose—positive/negative (isolation)**Unit Cost:** Not specified**Availability:** Delivery within 60 d**Current Users:** Not specified

Description: The Reeves Positive/Negative Pressure Isolation Shelter fuses patented DRASH shelter technology with a 5 stage HEPA filtration system to form a portable, all-weather solution to biological outbreak isolation. The Isolation Shelter comes complete with a biologically secure staff anteroom.

Shelter features:

- Interior and exterior shelter covers provide thermal insulation. External cover is fire retardant, mildew resistant and waterproof.
- Patented frame design allows for quick set up and strike time without the use of special tools.
- Biologically secure staff entrance purge chamber allows for donning and doffing of gear before entering or exiting the isolation room.
- Available in 5 different sizes, ranging from 170 ft² to 420 ft².
- Integrated windows with privacy curtains allow for patient monitoring without entering the isolation room.

Decontamination Process: Not applicable

Application

Personnel decontamination**Application Notes:** Positive/negative pressure patient isolation**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable**Chemical Agents:** Not applicable**Bio Agents:** Biologically secure staff anteroom**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable**Decontamination Solutions:** Not applicable**Capacity Throughput:** Holds up to 8 patients**Set-up Time:** Under 30 min

PHYSICAL PARAMETERS

Size: 16 m² x 39 m² (170 ft² to 420 ft²)**Weight:** Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Not specified

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: None required

Applicable Regulations: None required

GENERAL

J Series Tactical Soft Shelter (TSS)

Model: J Series

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter

Type: Multipurpose

Unit Cost: Not specified

Availability: Delivery within 60 d

Current Users: Not specified

Description: J Series Shelter System is a trailer mounted, rugged, reliable, and user friendly shelter that is ready within minutes. The J Shelters are operable in weather extremes from -40 °C to 51.7 °C (-40 °F to 125 °F).

Decontamination Process: Not applicable

Application

Personnel decontamination

Application Notes: Shelter with external cover and internal lining attached, no assembly required. The shelter can be used as a single stand alone shelter or connected to other shelters (S/XB/or J).

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not applicable

Capacity Throughput: Not specified

Set-up Time: 30 min with training

PHYSICAL PARAMETERS

Size: The J shelter measures 10.7 m x 9.6 m x 3.8 (35 ft x 31.5 ft x 12.5 ft) l,w,h for 102 m² (1103 ft²)

Weight: 726 kg (1600 lb)

Power Requirements: Not specified

LOGISTICS

Portability: Completely portable (4 or more persons). The JS is transported in its own J Trailer. The J Trailer is towable by an FMTV. A manually tilting J Trailer bed and removable wheels on the JS Shelter allow for personnel to push the shelter in place over an inflatable air bladder.

Consumables Required: Not specified

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: Not specified

Storage Conditions: Covered or enclosed storage area. Packed volume is 8.5 m³ (300 ft³).

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: -40 °C to 52 °C (-40 °F to 125 °F)

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: None required

Applicable Regulations: None required

GENERAL

M Series Shelter System

Model: M Series

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter

Type: Multipurpose

Unit Cost: Not specified

Availability: Delivery within 60 d

Current Users: Not specified

Description: M Series Shelter System is a lightweight, man-portable, rugged, reliable, and user friendly shelter that is ready within minutes. The M Shelters are operable in weather extremes from -40 °C to 51.7 °C (-40 °F to 125 °F). The M fits between the narrower S and XB Series and the wider J Series. The M has four components: two center M Sections and two end M Caps. The end caps are 1XBTM Shelters.

Decontamination Process: Not applicable

Application

Personnel decontamination

Application Notes: Shelter with external cover and internal lining attached, no assembly required. The shelter can be used as a single stand alone shelter or connected to other shelters (S/XB/or J).

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not applicable

Capacity Throughput: Not specified

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: The M shelter is 14 m x 6 m (44 ft 10 in x 19 ft 10 in) wide for 60 m² (650 ft²)

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Not specified

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: -40 °C to 52 °C (-40 °F to 125 °F)

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: None required

Applicable Regulations: None required

GENERAL

XB Series Shelter System

Model: XB Series

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter

Type: Multipurpose—command and control

Unit Cost: Not specified

Availability: Delivery within 60 d

Current Users: Not specified

Description: XB Series Shelter System is a lightweight, man-portable, rugged, reliable, and user friendly shelter that is ready within minutes. The XB Shelters are operable in weather extremes from -40 °C to 51.7 °C (-40 °F to 125 °F). Shelters have three parts: attached cover, ground cover, and floor. No Assembly required and no loose parts. No special tools needed. The XB comes in two basic variants: the 4 door or full variant and the 2 door or truncated (T) variant.

Decontamination Process: Not applicable

Application

Personnel decontamination

Application Notes: Command and control shelters. Shelter with external cover and internal lining attached, no assembly required. The shelter can be used as a Single stand alone shelter or connected to other shelters (S/XB/or J).

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not applicable

Chemical Agents: Not applicable

Bio Agents: Not applicable

TIMs:

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable
- **Low Hazard:** Not applicable

Rad/Nuc Materials: Not applicable

Decontamination Solutions: Not applicable

Capacity Throughput: Not specified

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: All shelters are 4.7 m (15.3 ft) wide and increase in length by increments of 1.2 m (4 ft) up to 10.9 m (35.3 ft)

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Not specified

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: -40 °C to 52 °C (-40 °F to 125 °F)

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: None required

Applicable Regulations: None required

GENERAL

2 Lane First Response System

Model: 2 Lane First Response

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. 1.5 m (5 ft) lanes provide ideal working space for responders and patients. Shelter sits inside of rigid-wall berm for complete run-off containment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients. Diesel water heating and solution injection unit provides a high volume of heated decon solution and rinse water to the integrated showers, allowing for a safer and more comfortable patient decontamination process.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Decon solution

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3 m x 4.9 m (10 ft x 16 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Decon solution and water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

165 000 BTU 18 GPM diesel water heater with decon solution injection system (includes water supply hoses)

Water Supply Adapter Kit

Applicable Regulations: None required

GENERAL

2 Lane Hospital System

Model: 2 Lane Hospital

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. 1.5 m (5 ft) lanes provide ideal working space for responders and patients. Shelter sits inside of rigid-wall berm for complete run-off containment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3 m x 6 m (10 ft x 20 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) black supply hose with cam-lock fittings
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

2 Lane Tactical Hospital System

Model: 2 Lane Tactical

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. 1.5 m (5 ft) lanes provide ideal working space for responders and patients. Shelter sits inside of rigid-wall berm for complete run-off containment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Tactical—System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3 m x 3.7 m (10 ft x 12 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) black supply hose with cam-lock fittings
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

2 or 3 Lane First Response System**Model:** 2 or 3 Lane First Response

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. Ideal as an offset two-lane system with one ambulatory lane and one wider nonambulatory lane. Easily converted to a three-lane system with the addition of a second lane division curtain.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients. Diesel water heating and solution injection unit provides a high volume of heated decon solution and rinse water to the integrated showers, allowing for a safer and more comfortable patient decontamination process.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Decon solution

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3.5 m x 4.6 m (11.5 ft x 15 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Decon solution and water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 425 000 BTU 28 GPM diesel water heater with decon solution injection system (includes water supply hoses)

- 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose
- 3.7 m (12 ft) collapsible patient roller system
- Water Supply Adapter Kit

Applicable Regulations: None required

GENERAL

2 or 3 Lane Hospital System**Model:** 2 or 3 Lane Hospital

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. Ideal as an offset two-lane system with one ambulatory lane and one wider nonambulatory lane. Easily converted to a three-lane system with the addition of a second lane division curtain.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3.5 m x 6 m (11.5 ft x 20 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 6 m (20 ft) collapsible patient roller system
- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) black supply hose with cam-lock fittings
- Water Supply Adapter Kit

Applicable Regulations: None required

GENERAL

2 or 3 Lane Tactical Hospital System**Model:** 2 or 3 Lane Tactical

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. Ideal as an offset two-lane system with one ambulatory lane and one wider nonambulatory lane. Easily converted to a three-lane system with the addition of a second lane division curtain.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Tactical system designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 3.5 m x 3 m (11.5 ft x 10 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 3.7 m (12 ft) collapsible patient roller system
- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) black supply hose with cam-lock fittings
- Water Supply Adapter Kit

Applicable Regulations: None required

GENERAL

3 Lane First Response System**Model:** 3 Lane First Response

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. Ideal lane configuration for a mass casualty incident with a very wide nonambulatory center lane, and male and female ambulatory lanes on each side.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Decon solution

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 4.4 m x 4.9 m (14.5 ft x 16 ft) ridged frame shelter (includes stake set, repair kit, and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Decon solution and water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 425 000 BTU 28 GPM diesel water heater with decon solution injection system (includes water supply hoses)

- 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose
- 4.9 m (16 ft) collapsible patient roller system
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

3 Lane Hospital System

Model: 3 Lane Hospital

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination of male and female ambulatory and/or nonambulatory patients. Ideal lane configuration for a mass casualty incident with a very wide nonambulatory center lane, and male and female ambulatory lanes on each side.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 4.4 m x 4.9 m (14.5 ft x 20 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 6 m (20 ft) collapsible patient roller system
- 11 m (35 ft), 1.27 cm (½ in) in red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) in black supply hose with cam-lock fittings
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

3 Lane Tactical Hospital System

Model: 3 Lane Tactical

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable decontamination system for effective NBC decontamination. Ideal lane configuration for a mass casualty incident with a very wide nonambulatory center lane, and male and female ambulatory lanes on each side.
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Tactical—System designed to provide copious amounts of water to thoroughly decontaminate ambulatory and/or nonambulatory patients

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles

Chemical Agents: Chemical agents

Bio Agents: Biological agents

TIMs:

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles

Decontamination Solutions: Water

Capacity Throughput: 9.5 L/min (2.5 gal/min) showerheads and handwands supply the waterflow necessary for thorough patient decontamination

Set-up Time: Under 15 min with training

PHYSICAL PARAMETERS

Size: 4.4 m x 3.7 m (14.5 ft x 12 ft) ridged frame shelter (includes stake set, repair kit and storage bag)

Weight: Not specified

Power Requirements: 110 V

LOGISTICS

Portability: Completely portable (4 or more persons); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training included with purchase of complete system, call for details and requirements

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft)

- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- 11 m (35 ft), 1.27 cm (½ in) black supply hose with cam-lock fittings
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

Field Shower Systems

Model: 2-Stall; 4-Stall; 6-Stall

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com



Status: The vendor has responded—8/21/2006

Category: Shelter
 Type: Shower system

Unit Cost: Not specified
 Availability: Delivery within 60 d
 Current Users: Not specified

Description:

- Rugged schedule 80 PVC frame
- Modular design for numerous versatile configurations
- Reinforced 12 mil translucent polyethylene cover
- Walk-through design with openings both ends
- Extra large shower design for level "A" gross decon if needed
- Optional oversized containment sump to catch all liquids
- Shower designed for easy and quick setup with Banjo Quick connects
- A 3/4 in garden hose fitting is included for the water supply
- Shower disassembles into a lightweight, compact package
- A polyethylene bag is included to store and transport components. (grids do not fit in a bag)

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: The Reeves Field Shower System is lightweight, rugged, and can be set up within minutes, making it the ideal accessory for first responders, fire professionals, military personnel or anyone else needing life support areas in a hurry
Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles**Chemical Agents:** Chemical agents**Bio Agents:** Biological agents**TIMs:**

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles**Decontamination Solutions:** Water**Capacity Throughput:** Not specified**Set-up Time:** Under 15 min with training

PHYSICAL PARAMETERS

Size: Not specified**Weight:** Not specified**Power Requirements:** 110 V

LOGISTICS

Portability: Completely portable (1 person); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training CD included

Manuals Available: Operator manuals available

Support Equipment: None required

Applicable Regulations: None required

GENERAL

Individual Decon System**Model:** Individual Decon

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter
Type: Shower stand and tent

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Rapidly deployable system in a lightweight and compact footprint

- Enough inside height to comfortably gross decontaminate individual personnel outfitted in any level of protection
- Effective for NBC decontamination of one or two ambulatory patients at a time
- Easily converted to a nonambulatory decontamination system with the removal of center modesty curtain
- Line integrated plumbing package—4 showerheads and 2 handwands

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: NBC decontamination of one or two ambulatory patients at a time
Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles**Chemical Agents:** Chemical agents**Bio Agents:** Biological agents**TIMs:**

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles**Decontamination Solutions:** Water**Capacity Throughput:** Not specified**Set-up Time:** Under 15 min with training

PHYSICAL PARAMETERS

Size: 2 m x 1.5 m (6 ft 10 in x 5 ft) ridged frame shelter (includes stake set, repair kit, and storage bag)**Weight:** Not specified**Power Requirements:** 110 V

LOGISTICS

Portability: Completely portable (1 person); system can be easily transported**Consumables Required:** Water**Maintenance Required:** System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: 24 mo limited warranty on the shelter and cover

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training CD included

Manuals Available: Operator manuals available

Support Equipment: 30 GPM submersible water pump with 4.6 m (15 ft) discharge hose

- 11 m (35 ft), 1.27 cm (½ in) red supply hose with cam-lock fittings
- Water supply adapter kit

Applicable Regulations: None required

GENERAL

PVC Shower**Model:** Single-Stall

Reeves EMS
 4510A Metropolitan Court
 Frederick, Maryland 21704
 800-328-5563 (Tel)
 301-698-1599 (Fax)
 info@reevesdecon.com
 Tom Simanski
 tsimanski@reevesdecon.com
 http://www.reevesdecon.com

**Status:** The vendor has responded—8/21/2006**Category:** Shelter
Type: Shower stand and tent

Unit Cost: Not specified
Availability: Delivery within 60 d
Current Users: Not specified

Description: Created by combining patented DRASH shelter technology and state-of-the-art water supply systems, this unique, independently operational design includes private shower stalls, and a common wash area with wash basins, and benches. A rigid-wall containment berm sits on the inside perimeter of the shelter to ensure that runoff water is contained within the entire system. Raised flooring sits inside the berm, along with an automated waste water pump system that automatically turns on when water is present and shuts off when the water level is below a quarter inch. Together the flooring and the pump system work to ensure that shower users are not standing in dirty runoff water. Water can be delivered from a fixed, pressurized water source such as a building, fire hydrant, or fire truck, and also from a fresh water bladder or body of water via a pressurized pump system. It can then be heated for maximum comfort utilizing a thermostatically-controlled diesel water heater.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Life support. The Reeves Field Shower System is lightweight, rugged, and can be set up within minutes, making it the ideal accessory for first responders, fire professionals, military personnel or anyone else needing life support areas in a hurry.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: CB agents to include TIMs and radiological particles**Chemical Agents:** Chemical agents**Bio Agents:** Biological agents**TIMs:**

- **High Hazard:** TIMs
- **Medium Hazard:** TIMs
- **Low Hazard:** TIMs

Rad/Nuc Materials: Radiological particles**Decontamination Solutions:** Water**Capacity Throughput:** Not specified**Set-up Time:** Under 15 min with training

PHYSICAL PARAMETERS

Size: Not specified**Weight:** Not specified**Power Requirements:** 110 V

LOGISTICS

Portability: Completely portable (4 person); system can be easily transported

Consumables Required: Water

Maintenance Required: System should be cleaned and dried prior to storage

Maintenance Cost: Not specified

Use/Reuse: System can be cleaned and reused with minimal effort

Shelf Life: 5 yr

Storage Conditions: Covered or enclosed storage area

Durability: Not specified

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Highly trained support staff available during normal business hours

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Minimal training required

Operator Training Required: Minimal training required

Training Available: Training CD included

Manuals Available: Operator manuals available

Support Equipment: None required

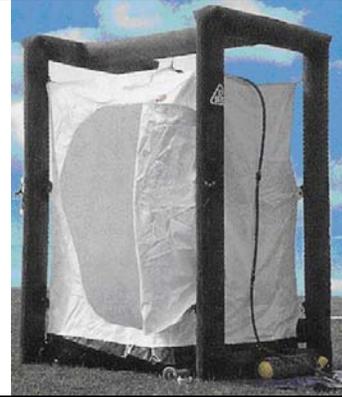
Applicable Regulations: None required

GENERAL

Type 1000 Individual Decon Shower Unit

Model: T1000

RFD Beaufort
 1420 Wolf Creek Trail
 PO Box 359
 Sharon Center, Ohio 44274-0359
 330-239-4331 (Tel)
 330-239-3671 (Fax)
 Dave Abbott
 dabbott@rfdbeaufort.com
 RFD Beaufort pamphlet



Status: The vendor has responded—10/9/2006

Category: Shelter
Type: Shower system

Unit Cost: From \$3.5K dependant on specification
Availability: Manufactured on demand. Typical lead time 6 wk.
Current Users: Several NATO countries

Description: Air beam structure supporting shower facilities
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Self decontamination
Testing: Fully tested

OPERATIONAL PARAMETERS

Materials Decontaminated: Dependant on decontaminant
Chemical Agents: Dependant on decontaminant
Bio Agents: Dependant on decontaminant
TIMs:

- **High Hazard:** Dependant on decontaminant
- **Medium Hazard:** Dependant on decontaminant
- **Low Hazard:** Dependant on decontaminant

Rad/Nuc Materials: Dependant on decontaminant
Decontamination Solutions: Water based shower system
Capacity Throughput: Dependant on material to be decontaminated
Set-up Time: 40 s with compressed air cylinder by 1 person

PHYSICAL PARAMETERS

Size: 1.92 m x 1.35 m x 2.3 m (6.4 ft x 4.5 ft x 7.8 ft)
Weight: 23 kg (50 lb)
Power Requirements: Generator to operate shower system

LOGISTICS

Portability: Portable by manpower. Inflatable system fully portable; however, transportation required for support equipment.
Consumables Required: Decontaminant
 Support equipment includes generator, water heater, ACU, waste water pump, and inflator
Maintenance Required: Annual. Air holding and system check.
Maintenance Cost: Minimal for any amount of usage, contains no moving parts
Use/Reuse: Can be cleaned and reused with minimal effort
Shelf Life: >5 yr

Storage Conditions: Store internally, dry conditions

Durability: Highly durable designed to withstand robust handling

Environmental Conditions: Can resist 40 km/h (25 mph) steady wind speed and wind gusts to 50 km/h (35 mph)

Environmental Considerations: Hazardous water disposal required from berm

Resources: Manpower and transportation is required (for the support equipment)

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by manufacturer

Operator Training Required: <8 h not provided by manufacturer

Training Available: Basic training available

Manuals Available: Technical manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Type 3000 Lightweight Mass Decon Shower System

Model: T3000

RFD Beaufort
 1420 Wolf Creek Trail
 PO Box 359
 Sharon Center, Ohio 44274-0359
 330-239-4331 (Tel)
 330-239-3671 (Fax)
 Dave Abbott
 dabbott@rfdbeaufort.com
 RFD Beaufort pamphlet



Status: The vendor has responded—10/9/2006

Category: Shelter
Type: Multipurpose shower system

Unit Cost: From \$10K dependant on specification

Availability: Manufactured on demand. Typical lead time 6 wk.

Current Users: Several NATO countries

Description: Air beam structure supporting shower facilities

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Mass casualty decontamination

Testing: Fully tested

OPERATIONAL PARAMETERS

Materials Decontaminated: Dependant on decontaminant

Chemical Agents: Dependant on decontaminant

Bio Agents: Dependant on decontaminant

TIMs:

- **High Hazard:** Dependant on decontaminant
- **Medium Hazard:** Dependant on decontaminant
- **Low Hazard:** Dependant on decontaminant

Rad/Nuc Materials: Dependant on decontaminant

Decontamination Solutions: Water based shower system

Capacity Throughput: Dependant on material to be decontaminated

Set-up Time: 40 s with compressed air cylinder by 1 person

PHYSICAL PARAMETERS

Size: 5 m x 4 m x 2.9 m (16.4 ft x 13.1 ft x 9.5 ft)—dependant on specification

Weight: 54.9 kg (121 lb) dependant on specification

Power Requirements: Generator to operate shower system

LOGISTICS

Portability: Portable by manpower. Inflatable system fully portable; however, transportation required for support equipment.

Consumables Required: Decontaminant

Support equipment includes generator, water heater, ACU, waste water pump, and inflator

Maintenance Required: Annual. Air holding and system check.

Maintenance Cost: Minimal for any amount of usage, contains no moving parts

Use/Reuse: Can be cleaned and reused with minimal effort

Shelf Life: >5 yr

Storage Conditions: Store internally, dry conditions

Durability: Highly durable designed to withstand robust handling

Environmental Conditions: Can resist approximately 90 km/h (55 mph) steady wind speed and wind gusts of approximately 105 km/h (65 mph)

Environmental Considerations: Hazardous water disposal required from berm

Resources: Manpower and transportation is required (for the support equipment)

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by manufacturer

Operator Training Required: <8 h not provided by manufacturer

Training Available: Basic training available

Manuals Available: Technical manual

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Type 5500-D Mass Decon Shower System

Model: T5500-D

RFD Beaufort
 1420 Wolf Creek Trail
 PO Box 359
 Sharon Center, Ohio 44274-0359
 330-239-4331 (Tel)
 330-239-3671 (Fax)
 Dave Abbott
 dabbott@rfdbeaufort.com
 RFD Beaufort pamphlet



Status: The vendor has responded—10/9/2006

Category: Shelter
Type: Multipurpose shower system

Unit Cost: From \$13K dependant on specification
Availability: Manufactured on demand. Typical lead time 6 wk.
Current Users: Several NATO countries

Description: Air beam structure supporting shower facilities
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Mass casualty decontamination
Testing: Fully tested

OPERATIONAL PARAMETERS

Materials Decontaminated: Dependant on decontaminant

Chemical Agents: Dependant on decontaminant

Bio Agents: Dependant on decontaminant

TIMs:

- **High Hazard:** Dependant on decontaminant
- **Medium Hazard:** Dependant on decontaminant
- **Low Hazard:** Dependant on decontaminant

Rad/Nuc Materials: Dependant on decontaminant

Decontamination Solutions: Water based shower system

Capacity Throughput: Dependant on material to be decontaminated

Set-up Time: 1 min by 2 people with compressed air cylinder 2.5 min by 2 people with electrical blower

PHYSICAL PARAMETERS

Size: 5.2 m x 5.2 m x 2.4 m (17 ft x 17 ft x 8 ft) dependant on specification

Weight: 140 kg (309 lb) dependant on specification

Power Requirements: Generator to operate shower system

LOGISTICS

Portability: Portable by manpower. Inflatable system fully portable; however, transportation required for support equipment.

Consumables Required: Decontaminant

Support equipment includes generator, water heater, ACU, waste water pump, and inflator

Maintenance Required: Annual. Air holding and system check.

Maintenance Cost: Minimal for any amount of usage, contains no moving parts

Use/Reuse: Can be cleaned and reused with minimal effort

Shelf Life: >5 yr

Storage Conditions: Store internally, dry conditions

Durability: Highly durable designed to withstand robust handling

Environmental Conditions: No data

Environmental Considerations: Hazardous water disposal required from berm
Resources: Manpower and transportation is required (for the support equipment)
Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by manufacturer
Operator Training Required: <8 h not provided by manufacturer
Training Available: Basic training available
Manuals Available: Technical manual
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

Type 2000 Personal Decontamination Shower Unit

Model: T2000

RFD Beaufort
 1420 Wolf Creek Trail
 PO Box 359
 Sharon Center, Ohio 44274-0359
 330-239-4331 (Tel)
 330-239-3671 (Fax)
 Dave Abbott
 dabbott@rfdbeaufort.com
 RFD Beaufort pamphlet



Status: The vendor has responded—10/9/2006

Category: Shelter
Type: Shower system

Unit Cost: From \$7K dependant on specification
Availability: Manufactured on demand. Typical lead time 6 wk.
Current Users: Several NATO countries

Description: Air Beam Structure supporting shower facilities
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Self/buddy decontamination
Testing: Fully tested

OPERATIONAL PARAMETERS

Materials Decontaminated: Dependant on decontaminant
Chemical Agents: Dependant on decontaminant
Bio Agents: Dependant on decontaminant
TIMs:

- **High Hazard:** Dependant on decontaminant
- **Medium Hazard:** Dependant on decontaminant
- **Low Hazard:** Dependant on decontaminant

Rad/Nuc Materials: Dependant on decontaminant
Decontamination Solutions: Water based shower system
Capacity Throughput: Dependant on material to be decontaminated
Set-up Time: 2 min by 1 person with electrical blower provided

PHYSICAL PARAMETERS

Size: 276 cm x 303 cm x 287 cm (9 ft x 10 ft x 9.4 ft)
Weight: 36 kg (80 lb)
Power Requirements: Generator to operate shower system

LOGISTICS

Portability: Portable by manpower. Inflatable system fully portable; however, transportation required for support equipment.
Consumables Required: Decontaminant
Maintenance Required: Annual. Air holding and system check.
Maintenance Cost: Minimal for any amount of usage, contains no moving parts
Use/Reuse: Can be cleaned and reused with minimal effort
Shelf Life: >5 yr
Storage Conditions: Store internally, dry conditions

Durability: Highly durable designed to withstand robust handling

Environmental Conditions: No data

Environmental Considerations: Hazardous water disposal required from berm

Resources: Manpower and transportation is required (for the support equipment)

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h not provided by manufacturer

Operator Training Required: <8 h not provided by manufacturer

Training Available: Basic training available

Manuals Available: Technical manual

Support Equipment: Support equipment includes generator, water heater, ACU, waste water pump, and inflator

Applicable Regulations: Not specified

GENERAL

Decon Shower
Model: HDS-6012

RMC MEDICAL
3019 Darnell Road
Philadelphia, Pennsylvania 19154
215-824-4100 (Tel)
215-824-1371 (Fax)
info@rmcmedical.com
Lois White
rmcmedical@cs.com
http://www.rmcmedical.com



Status: The vendor has responded—7/18/2006

Category: Shelter
Type: Shower stand

Unit Cost: \$604

Availability: 2 wk to 4 wk ARO

Current Users: Various industrial, EMS, and hospital locations

Description: Portable, collapsible, reusable decontamination shower with canvas duffel bag for storage. This unit is constructed with 3.81 cm (1 1/2 in) PVC pipe and is color coded for ease of assembly.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Portable shower

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN

Chemical Agents: CBRN

Bio Agents: CBRN

TIMs:

- **High Hazard:** NCBRN
- **Medium Hazard:** CBRN
- **Low Hazard:** CBRN

Rad/Nuc Materials: CBRN

Decontamination Solutions: Water

Capacity Throughput: 3 gpm to 4 gpm flow rate at 40 psi to 60 psi

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 1.1 m x 1.1 m x 2.34 m (43 in x 43 in x 92 in) high

Weight: 22.7 kg (50 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Water

Maintenance Required: Appropriate storage

Maintenance Cost: Replacement parts as needed

Use/Reuse: Reusable

Shelf Life: 5 yr to 10 yr (not tested) with proper storage

Storage Conditions: Store away from excessive heat or cold
Durability: Indefinite under normal emergency operating conditions
Environmental Conditions: Not specified
Environmental Considerations: Per local standard operating procedures
Resources: 2 people
Warranty: Manufacturer's defects only

SPECIAL PARAMETERS

Operator Skills Required: Self-explanatory
Operator Training Required: Self-explanatory
Training Available: Product insert including instructions
Manuals Available: Product insert including instructions
Support Equipment: Optional accessories available
Applicable Regulations: Not applicable

GENERAL**Decon Pool**
Model: HDP-6000

RMC MEDICAL
 3019 Darnell Road
 Philadelphia, Pennsylvania 19154
 215-824-4100 (Tel)
 215-824-1371 (Fax)
 info@rmcmedical.com
 Lois White
 rmcmedical@cs.com
 http://www.rmcmedical.com



Status: The vendor has responded—7/20/2006

Category: Accessory
Type: Containment

Unit Cost: \$236/case of 2
Availability: 1 wk to 2 wk ARO
Current Users: Various EMS and hospital locations

Description: Portable, disposable, lightweight containment basin (pool) for collecting runoff from a decontamination shower. Constructed with a 12 mil reinforced polyethylene chemically resistant liner that is pre-attached to the framework.
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Containment basin
Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN
Chemical Agents: CBRN
Bio Agents: CBRN
TIMs:

- **High Hazard:** CBRN
- **Medium Hazard:** CBRN
- **Low Hazard:** CBRN

Rad/Nuc Materials: CBRN
Decontamination Solutions: Water
Capacity Throughput: Holds up to 662 L (175 gal)
Set-up Time: 1 min

PHYSICAL PARAMETERS

Size: 1.5 m x 1.5 m x 0.3 m (60 in x 60 in x 12 in) set-up; 1.5 m x 0.5 m x <0.1 m (60 in x 21 in x 3 in) stored
Weight: 5 kg (11 lb)
Power Requirements: Not applicable

LOGISTICS

Portability: Man portable
Consumables Required: Water
Maintenance Required: Proper storage
Maintenance Cost: Not applicable
Use/Reuse: Disposable
Shelf Life: 5 yr to 10 yr (not tested) with proper storage

Storage Conditions: Store away from excessive heat or cold

Durability: Sturdy construction for one time use

Environmental Conditions: Not specified

Environmental Considerations: Per local, state, and federal regulations

Per local standard operating procedures

Resources: 1 person

Warranty: Manufacturer's defects only

SPECIAL PARAMETERS

Operator Skills Required: Self-explanatory

Operator Training Required: Self-explanatory

Training Available: Product insert including instructions

Manuals Available: Product insert including instructions

Support Equipment: Optional accessories available

Applicable Regulations: Not applicable

GENERAL

Disposable Decon System

Model: PDS-5000 E/H

RMC MEDICAL
 3019 Darnell Road
 Philadelphia, Pennsylvania 19154
 215-824-4100 (Tel)
 215-824-1371 (Fax)
 info@rmcmedical.com
 Lois White
 rmcmedical@cs.com
 http://www.rmcmedical.com



Status: The vendor has responded—7/19/2006

Category: Accessory
Type: Containment

Unit Cost: \$567/case of 3

Availability: 2 wk ARO

Current Users: Various EMS and hospital locations

Description: Portable, disposable, lightweight, compact, pre-assembled unit (tub) made with PVC laminated nylon. Fits any standard gurney or stretcher. Designed to be used with a backboard. Resistant to chemicals. Pre-assembled with PVC drain/hose and 19 L (5 gal) collection container. Disposal bag included

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Disposable decon system—patient decontamination

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN

Chemical Agents: CBRN

Bio Agents: CBRN

TIMs:

- **High Hazard:** CBRN
- **Medium Hazard:** CBRN
- **Low Hazard:** CBRN

Rad/Nuc Materials: CBRN

Decontamination Solutions: Water

Capacity Throughput: 19 L (5 gal) with option of adding more water collection containers

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 61 cm x 38 cm x 10.2 cm (24 in x 15 in x 4 in) stored

Weight: 3.6 kg (8 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Water

Maintenance Required: Not applicable

Maintenance Cost: Not applicable

Use/Reuse: Disposable

Shelf Life: 5 yr to 10 yr (not tested) with proper storage
Storage Conditions: Store away from excessive heat or cold
Durability: Sturdy construction for one time use
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: 1 person
Warranty: Manufacturer's defects only

SPECIAL PARAMETERS

Operator Skills Required: Self-explanatory
Operator Training Required: Self-explanatory
Training Available: Product insert including instructions
Manuals Available: Product insert including instructions
Support Equipment: Optional accessories available
Applicable Regulations: Not applicable

GENERAL

Hospital Decontamination Tabletop

Model: PDS-2000

RMC MEDICAL
 3019 Darnell Road
 Philadelphia, Pennsylvania 19154
 215-824-4100 (Tel)
 215-824-1371 (Fax)
 info@rmcmedical.com
 Lois White
 rmcmedical@cs.com
 http://www.rmcmedical.com



Status: The vendor has responded—7/19/2006

Category: Accessory

Type: Containment

Unit Cost: \$2.99K

Availability: 3 wk ARO

Current Users: Various hospital

Description: For the emergency medical treatment and decontamination of a contaminated/injured patient. Lightweight, durable 100 % fiberglass construction. This is an impermeable, washable, reusable unit (tub). Included with the tabletop are backboard, flexible drain hose, locking straps, two 57 L (15 gal) waste collection containers, spray nozzle, and wall mounting bracket. Straps onto a standard hospital gurney.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Patient decon system

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN

Chemical Agents: CBRN

Bio Agents: CBRN

TIMs:

- **High Hazard:** CBRN
- **Medium Hazard:** CBRN
- **Low Hazard:** CBRN

Rad/Nuc Materials: CBRN

Decontamination Solutions: Water

Capacity Throughput: 57 L (15 gal) with option of adding more water containers

Set-up Time: 10 min

PHYSICAL PARAMETERS

Size: 2.2 m x 0.8 m x 0.2 m (87 in x 31 in x 7 in)

Weight: 24.9 kg (55 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: Man portable

Consumables Required: Water

Maintenance Required: Proper storage

Maintenance Cost: Not applicable

Use/Reuse: Reusable
Shelf Life: 5 yr to 10 yr (not tested) extended
Storage Conditions: Store away from excessive heat or cold
Durability: Indefinite with proper care
Environmental Conditions: Not specified
Environmental Considerations: Per local, state, and federal regulations
Resources: 2 people
Warranty: Manufacturer's defects only

SPECIAL PARAMETERS

Operator Skills Required: Self-explanatory
Operator Training Required: Self-explanatory
Training Available: Product insert including instructions
Manuals Available: Product insert including instructions
Support Equipment: Optional accessories available
Applicable Regulations: Not applicable

GENERAL

Expedient MOPP Exchange System**Model:** EMES

Survival, Inc.
2633 Eastlake Ave East
Suite 103
Seattle, Washington 98102
800-292-4707 (Tel)
206-726-0130 (Fax)
Rick Stewart
ricks@survivalinc.com
Keri Kliemann
kerik@survivalinc.com
http://www.survivalinc.com

**Status:** The vendor has responded—6/27/2006**Category:** **Accessory****Type:** Kit (Backpack, roll out mat with printed instructions)**Unit Cost:** \$2K; \$1.9K (GSA buyers)**Availability:** Manufactured on demand; 30 d to 90 d lead time; minimum order not required**Current Users:** EMES™ is well-suited for contingency response groups, combat communications units, RED HORSE Squadrons, security forces personnel, and other special operations forces

Description: The Expedient MOPP Exchange System™ (EMES™) is a compact, multi-threat decontamination system specifically designed for processing small teams where access to a Contamination Control Area (CCA) is impractical or impossible. This portable backpack decontamination processing system supports individuals contaminated with chemical, biological, or radiological hazards. Designed to logistically support 20 individuals, the EMES™ can accommodate larger teams as long as expendable items such as bleach, towellettes, and M-295s are replenished. EMES™ was developed to mirror pre-existing processing systems and ideologies such as the Contaminant Air Processing System™ (CAPS™) and its Chemical, Biological, and Radiological Integrated Processing System™ (CBRIPST™) configuration. Lightweight, this system can be carried by an individual or air-dropped to any location. EMES™ contains all essential components for stand-alone processing in remote locations. One to two individuals can expediently deploy this system in 20 min to 30 min.

Decontamination Process: Physical (removes decontaminant)

Application

Personnel decontamination

Application Notes: The EMES™ is an expedient decontamination system designed to process personnel wearing military protective equipment such as the chemical protective overgarment (CPO) and battle dress overgarment (BDO). The key component of the EMES™ is a 15 m (50 ft) roll-out vinyl tarp with printed processing instructions on it for each step of decontamination processing. Kit components also include decon towellettes, towellette dispensers, snaplights, misting bottles, cutting tools, containment hampers, boot wash trays, and other essential items.

Testing: Not applicable

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN**Chemical Agents:** Nerve Agents Decontaminated/Neutralized

G-Series—The 5 % chlorine solution starts the neutralization process and the process of using the M295 decon kit collects and removes the contaminant

VX or equivalent—The 5 % chlorine solution starts the neutralization process and the process of using the M295 decon kit collects and removes the contaminant

Bio Agents: The 5 % chlorine solution will start to break down viral and toxin biological agents as personnel are sprayed with the 5 % chlorine solution in the garden sprayers. The chlorine solution will encapsulate the biological contaminants and the M295 kit will collect the liquid bleach and the contamination. This will mechanically remove the contamination. As personnel remove contaminated clothing it is contained in plastic bags at each station.**TIMs:**

- **High Hazard:** Not applicable
- **Medium Hazard:** Not applicable

- **Low Hazard:** Not applicable

Rad/Nuc Materials: Decontaminates solids, dust, and liquids

Expedient MOPP Exchange System™ has been designed to remove radiological particulates through a similar processing methodology as chemical and biological threats. The bleach solution in the garden sprayers encapsulates contaminants and the M295 kit collects the liquid bleach and the contamination. As personnel move through each station protective equipment is removed and contained in plastic bags, removing the contamination from personnel. The last items removed are the protective mask and gloves so the airway and hands are protected the entire time.

Decontamination Solutions: The U.S. Air Force recommendation is to use a 5 % chlorine solution for decontaminating chemical or biological agents. Sodium hypochlorite, household bleach, super tropical bleach, or potassium hypochlorite can be used in the system.

Capacity Throughput: 20 people

Set-up Time: 20 to 30 min

PHYSICAL PARAMETERS

Size: 711.2 mm x 635 mm x 304.8 mm (28 in x 25 in x 12 in)

Weight: 40.8 kg (90 lb)

Power Requirements: Not applicable

LOGISTICS

Portability: System comes in a large backpack and can be carried two people

Consumables Required: Monthly training only—21 L (5.5 gal) of bleach would be required if bleach is used in training. Water can be substituted for training and the same amount of water would be required. 6 towelette rolls would be used for decontaminating hands and equipment.

Monthly—To process 20 personnel you would require 5.5 gal of bleach and 6 rolls of towelettes. Forty (40) M295 kits would be required for 20 personnel. Replace 12 chemical light sticks if used at night. The amount of consumables is based on the amount of personnel that process through the system, not days of operation.

Weekly—To process 20 personnel you would require 21 L (5.5 gal) of bleach and 6 rolls of towelettes. Forty (40) M295 kits would be required for 20 personnel. Replace 12 chemical light sticks if used at night. The amount of consumables is based on the amount of personnel that process through the system, not days of operation.

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified

Durability: All components are made of heavy duty material. The 15 m (50 ft) sheet is made of a heavy vinyl material that will last for 5 yr or more.

Environmental Conditions: The only environmental condition that would affect the system is wind

Environmental Considerations: The only concern with environmental issues would be the contaminated clothing and towelettes that personnel use while processing through the system. The user would have to follow contaminated waste procedures when disposing of these items.

Resources: Two personnel can carry this system. It is easy to transport. Two personnel can set up and operate this system.

Warranty: 1 yr for manufacturer's defects

SPECIAL PARAMETERS

Operator Skills Required: No more than 4 h provided by the manufacturer

Operator Training Required: No more than 4 h provided by the manufacturer

Training Available: Survival Inc. has a GSA contract to provide training on the EMES™ system. The training is usually 4 h but can be reduced or increased by the customers needs. The training will include 4 h hands on training.

Manuals Available: Manuals are available

Support Equipment: Not applicable

Applicable Regulations: Not specified

GENERAL

Hit and Run Kit 2

Model: Hit and Run Kit 2

Survival, Inc.
2633 Eastlake Ave East
Suite 103
Seattle, Washington 98102
800-292-4707 (Tel)
206-726-0130 (Fax)
Rick Stewart
ricks@survivalinc.com
Keri Kliemann
kerik@survivalinc.com
<http://www.survivalinc.com>



Status: The vendor has responded—6/27/2006

Category: Shelter

Type: Shower stand—portable shower and shelter

Unit Cost: \$15K

Availability: Manufactured on demand; 30 d to 90 d lead time; minimum order not required

Current Users: U.S. Air Force—15 units—3 yr—CMSgt Marita Woods (850-283-6142); Mr Troy Stalvey (850-283-6161)

U.S. Air Force—25+ units—3 yr—CMSgt Richard Robichaud (703-697-6066)

U.S. Air National Guard—90+ units—3 yr—CMSgt Jerry Stoddard (703-607-3439)

Description: The Hit and Run Kit™ (HRK™) is designed to provide an immediate method of decontamination for individuals exposed to chemical, biological, radiological or nuclear attacks. This kit can be set up in a 3.7 m x 15 m (12 ft x 50 ft) area in 20 min. It provides total site remediation after use. First responders can establish a decontamination line in open areas, entrances and exits to buildings such as hospitals or shelters and along flight lines at airports. The hit and run kit 2 has five 1.5 m x 1.5 m (5 ft x 5 ft) stations and a misting shower at the entrance of the processing line. The system can process personnel on both sides of the station providing the capability to process 4 personnel at a time.

Decontamination Process: Physical (removed contaminant)

Application

Personnel decontamination

Application Notes: The Hit and Run Kit™ (HRK™) can be set up to process small numbers of first responders of 50 or less. It is used as an interim or expedient system until the larger CAPS CBRIPS system can be established. It is used to process personnel into pressurized and CBRN protected facilities.

Testing: Testing organization—28th Test Squadron Eglin AFB, Florida

Test(s) conducted—Operational test to evaluate the effectiveness of the hit and run kit to process personnel with minimal contamination transfer using chemical agent simulants into collective protected facilities. Tested the throughput and logistical requirements for the system. Dates tested was May 2004.

OPERATIONAL PARAMETERS

Materials Decontaminated: CBRN

Chemical Agents: Nerve Agents Decontaminated/Neutralized

G-Series—The 5 % chlorine solution starts the neutralization process and the process of using the M295 decon kit collects and removes the contaminant

VX or equivalent—The 5 % chlorine solution starts the neutralization process and the process of using the M295 decon kit collects and removes the contaminant

Bio Agents: The 5 % chlorine solution will start to break down viral and toxin biological agents as personnel go through the misting shower. The chlorine solution will encapsulate the biological contaminants and the M295 kit will collect the liquid bleach and the contamination. This will mechanically remove the contamination. As personnel remove contaminated clothing it is contained in plastic bags at each station.

TIMs:

- **High Hazard:** TICs can be removed mechanically through the deluge shower in the system using current NFPA standards for decontamination
- **Medium Hazard:** TICs can be removed mechanically through the deluge shower in the system using current NFPA standards for decontamination
- **Low Hazard:** TICs can be removed mechanically through the deluge shower in the system using current NFPA standards for decontamination

Rad/Nuc Materials: Decontaminates solids, dust, and liquids

Hit and Run Kit™ has been designed to remove radiological particulates through a similar processing methodology as chemical and biological threats. The bleach solution in the initial misting shower encapsulates contaminants and the M295 kit collects the liquid bleach and the contamination. As personnel move through each station protective equipment is removed and contained in plastic bags, removing the contamination from personnel. The last items removed are the protective mask and gloves so the airway and hands are protected the entire time. For radiological contamination a shower will be set up at the end of the processing line for personnel to take a hygienic shower to ensure that all contamination is removed.

Decontamination Solutions: The U.S. Air Force recommendation is to use a 5 % chlorine solution for decontaminating chemical or biological agents. Sodium hypochlorite, household bleach, super tropical bleach, or potassium hypochlorite can be used in the system.

Capacity Throughput: The Hit and Run Kit validation in May 2004 proved the system could process 50 personnel per hour

Set-up Time: 20 min

PHYSICAL PARAMETERS

Size: Hit and Run Kit 2 fits into a container 1.2 m x 0.9 m x 2.1 m (4 ft x 3 ft x 7 ft) (w, h, l) and easily fits into a pick up truck, trailer or pallet for air cargo movement

Weight: 340 kg (750 lb)

Power Requirements: A generator is required to run the shower unit

LOGISTICS

Portability: The standard system comes in a wooden crate and would require a forklift to place it in the location needed. The individual components are lightweight and can be carried by one person. Survival Inc. manufactures a container called the Genesis, a collapsible, reconfigurable, and self-contained shipping system constructed of an advanced composite material that is virtually indestructible. The Genesis has hidden wheels that can be lowered to move the box and system around. This is an accessory item that can be purchased to store the hit and run kit.

Consumables Required: Monthly training only—3.79 L (1 gal) of gas for generator and 176 L (46.5 gal) of bleach would be required if bleach is used in training. Water can be substituted for training and the same amount of water would be required.

32 towellette rolls would be used for decontaminating hands and equipment.

Monthly—full use: The generator will run for 3 h on 3.79 L (1 gal) of gas. If the generator was used for 8 h/d for 30 d, then a total of 341 L (90 gal) of gas would be required. To process 50 personnel you would require 176 L (46.5 gal) of bleach and 32 rolls of towellettes. One hundred (100) M295 kits would be required for 50 personnel. The amount of consumables is based on the amount of personnel that process through the system, not days of operation.

Weekly—full use: The generator will run for 3 h on 3.79 L (1 gal) of gas. If the generator was used for 8 h/d for 1 wk, then a total of 21 gal of gas would be required. To process 50 personnel you would require 176 L (46.5 gal) of bleach and 32 rolls of towellettes. One hundred (100) M295 kits would be required for 400 personnel. The amount of consumables is based on the amount of personnel that process through the system, not days of operation.

Maintenance Required: Maintenance frequency—before and after each use: Inspect oil and gas level in generator. Inspect vinyl material for rips and tears. Inspect fiberglass components for damage. If HTH, STB or other chemicals are used for the 5 % chlorine solution, the misting shower and heads should be rinsed and cleaned to ensure there is no build up left in the shower heads.

Maintenance Cost: Estimated yearly cost assuming monthly training only—\$575.96 for towellettes and \$2.25 for 3.8 L (1 gal) of gas.

Estimated yearly cost assuming monthly: Full use—Using a baseline of 50 personnel, the costs would be: gas \$13.50; towellettes \$575.96; and \$93.00 for bleach. Total \$668.96.

Estimated yearly cost assuming weekly: Full use—Using a baseline of 50 personnel the costs would be: gas \$13.50; towellettes \$575.96; and \$93.00 for bleach. Total \$668.96.

A study of yearly use hasn't been conducted. Consumption rates are based on personnel through put.

Use/Reuse: All components are made of heavy duty fiberglass and vinyl and only need to be cleaned after use. Procedures are available to decontaminate and/or dispose of used decontamination apparatus.

Shelf Life: 5 yr

Storage Conditions: If the system is in the standard wooden crate it has to be stored indoors or undercover

Durability: All components are made of heavy duty fiberglass and vinyl. Components can withstand rough handling and withstand over 90.7 kg (200 lb) of weight on cross bars. The materials will last for 5 yr and more as long the system is dry and stored in a dry location. The container we manufacture Advanced Reconfigurable Container (ARC) is weather proof and the system can be stored in this container outside in the elements. If the system is in the standard wooden crate it has to be stored in doors or under cover. Rain will penetrate the wooden container and will eventually rot the vinyl material.

Environmental Conditions: The only environmental condition that would affect the system is wind. Our system has withstood 30 mph to 60 mph winds when set up.

Environmental Considerations: The only concern with environmental issues would be the contaminated clothing and towellettes that personnel use while processing through the system. The user would have to follow contaminated waste procedures when disposing of these items.

Resources: A forklift is required to move the system to the required location. Two personnel can set up the system in 20 min. For HAZMAT level A protective equipment there will have to be at least 5 attendants. At a minimum 3 attendants could manage the system for processing personnel in military protective equipment.

Warranty: 1 yr for manufacturer's defects

SPECIAL PARAMETERS

Operator Skills Required: >8 h provided by the manufacturer

Operator Training Required: >8 h provided by the manufacturer

Training Available: Survival Inc. has a GSA contract to provide training on the Hit and Run Kit™ system. The training is usually 2 d long but can be reduced or increased by the customers needs. The training will include 3 h of class room and 12 h of hands on training.

Manuals Available: Manuals are available

Support Equipment: Forklift or vehicle to transport the system

Applicable Regulations: Not specified

GENERAL

2 Line Decontamination System

Model: SYS-2 Line 8-20-1

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com



Status: The vendor has responded—7/20/2006

Category: Shelter
Type: Shower system

Unit Cost: \$29.9K

Availability: 60 d to 90 d upon receipt of order

Current Users: Military, first responder, and first receiver

Description: 2 Line Decontamination System for effective decontamination of mass casualties with a compact footprint in an extremely portable and light package

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: 2 Line Decontamination System for effective decontamination of mass casualties with a compact footprint in an extremely portable and light package.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel

Chemical Agents: NBC decontamination

Bio Agents: NBC decontamination

TIMs:

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination

Decontamination Solutions: End users protocol

Capacity Throughput: 64 people per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using 1 ambulatory lines and 1 nonambulatory line

80 people per hour with the following assumptions—using 2 ambulatory lines

Set-up Time: 4 min—shelter only

PHYSICAL PARAMETERS

Size: 6.1 m x 2.45 m x 2.7 m (20 ft x 8 ft x 9 ft) when set up

Weight: 434 kg (956 lb) complete system

Power Requirements: Diesel generator 5.5 kw

LOGISTICS

Portability: 2 man or 3 man portable

Consumables Required: Water

Maintenance Required: Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

3 Line Decontaminant System

Model: SYS-3 Line 11-20-1

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com



Status: The vendor has responded—7/20/2006

Category: Shelter
Type: Shower system

Unit Cost: \$32.9K

Availability: 60 d to 90 d upon receipt of order

Current Users: Military, first responder, and first receiver

Description: 3 Line Decontamination system for ambulatory and nonambulatory personnel enables effective NBC decontamination of mass casualties in a compact footprint

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: 3 Line Decontamination system for ambulatory and nonambulatory personnel enables effective NBC decontamination of mass casualties in a compact footprint.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel

Chemical Agents: NBC decontamination

Bio Agents: NBC decontamination

TIMs:

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination

Decontamination Solutions: End users protocol

Capacity Throughput: 104 personnel per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using 2 ambulatory lines and 1 nonambulatory line

120 personnel per hour with the following assumptions—using 3 ambulatory lines

Set-up Time: 5 min—shelter only

PHYSICAL PARAMETERS

Size: 6.1 m x 3.35 m x 2.7 m (20 ft x 11 ft x 9 ft) when set up

Weight: 476 kg (1050 lb) complete system

Power Requirements: Diesel generator 5.5 kw

LOGISTICS

Portability: 2 man or 3 man portable

Consumables Required: Water

Maintenance Required: Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

4 Line Decontamination System**Model:** SYS-SD4-WxA08-GZ

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com

**Status:** The vendor has responded—7/20/2006**Category:** Shelter
Type: Shower system**Unit Cost:** \$46.3K**Availability:** 60 d to 90 d upon receipt of order**Current Users:** Military, first responder, and first receiver**Description:** 4 Line Decontamination system for ambulatory and nonambulatory personnel enables effective NBC decontamination of mass casualties in a compact footprint**Decontamination Process:** Physical (removes contaminant)

Application

Personnel decontamination**Application Notes:** 4 Line Decontamination system for ambulatory and nonambulatory personnel enables effective NBC decontamination of mass casualties in a compact footprint**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel**Chemical Agents:** NBC decontamination**Bio Agents:** NBC decontamination**TIMs:**

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination**Decontamination Solutions:** End users protocol**Capacity Throughput:** 246 people per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using 2 ambulatory lines and 2 nonambulatory line

310 people per hour with the following assumptions—using 4 ambulatory lines

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 5.8 m x 4.9 m x 2.7 m (19 ft x 16 ft x 9 ft) when setup**Weight:** Not specified**Power Requirements:** Diesel generator 5.5 kw

LOGISTICS

Portability: 4 man portable**Consumables Required:** Water**Maintenance Required:** Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Consequence Response Decontamination System

Model: SYS-SD4-WxA10-GZ

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com



Status: The vendor has responded—7/20/2006

Category: Shelter
Type: Multipurpose—command and control

Unit Cost: \$60.9K

Availability: 60 d to 90 d upon receipt of order

Current Users: Military, first responder, and first receiver

Description: CRDS System offers maximum utility and flexibility for emergency response and consequence management personnel. Extra wide nonambulatory lanes provide optional work space for staff dressed in PPE.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Accommodates a variety of missions including, mass decontamination, individual/team self decontamination, and triage of mass casualties

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel

Chemical Agents: NBC decontamination

Bio Agents: NBC decontamination

TIMs:

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination

Decontamination Solutions: End users protocol

Capacity Throughput: 256 people per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using 2 ambulatory lines and 2 nonambulatory line

320 people per hour with the following assumptions—using 4 ambulatory lines

Set-up Time: 5 min—shelter only

PHYSICAL PARAMETERS

Size: 7.3 m x 4.9 m x 2.7 m (24 ft x 16 ft x 9 ft) when setup

Weight: 1025 kg (2260 lb) complete system

Power Requirements: Diesel generator 5.5 kw

LOGISTICS

Portability: 4 man portable

Consumables Required: Water

Maintenance Required: Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

High Capacity Decontamination System

Model: SYS-HC-UZA16-GZ

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com



Status: The vendor has responded—7/20/2006

Category: Shelter
Type: Shower system

Unit Cost: \$95.6K

Availability: 60 d to 90 d upon receipt of order

Current Users: Military, first responder, and first receiver

Description: System includes:

- 1 MP High Capacity Decontamination Shelter
- 1 Flash water heater
- 4 Hand sprayers
- 2 Water hose, Decon (red); 2 Water hose, Decon, (blue)
- 1 Two tap (red); 1 Two tap (blue)
- 3 Litter conveyor
- 4 Transfer board
- 6 Light fixture, Fluorescent
- 1 Maintenance kit, shower
- 1 Water pump
- 5 Floor Risers, 24 in 16 in; 15 Floor risers, 24 in x 48 in
- 1 Air heater
- 2 Hand trucks
- 1 Trailer
- 1 Generator
- 1 Prefilter

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: High capacity system for the rapid and effective on site NBC decontamination of personnel and with maximum flexibility

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel

Chemical Agents: NBC decontamination

Bio Agents: NBC decontamination

TIMs:

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination

Decontamination Solutions: End users protocol

Capacity Throughput: 236 people per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using 2 ambulatory lines and 1 nonambulatory line

300 people per hour with the following assumptions—using 3 ambulatory lines

Set-up Time: 18 min—shelter only

PHYSICAL PARAMETERS

Size: 15.5 m x 3.4 m x 2.7 m (51 ft x 11 ft x 9 ft) when set up

Weight: Not specified

Power Requirements: Diesel generator 5.5 kw

LOGISTICS

Portability: 4 man per module

Customized trailer

Consumables Required: Water

Maintenance Required: Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

UV stable, fire retardant and chemical resistant fabric on interior

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

Professional Individual Decontamination System

Model: SYS-Ind-10-13-01

TVI Corporation
 7100 Holladay Tyler Road
 Glenn Dale, Maryland 20769
 301-352-8800 (Tel)
 info@tvicorp.com
 Mary Jones
 mjones@tvicopr.com
 http://www.tvicorp.com



Status: The vendor has responded—7/20/2006

Category: Shelter
Type: Shower system

Unit Cost: \$7.3K

Availability: 60 d to 90 d upon receipt of order

Current Users: Military, first responder, and first receiver

Description: Individual Decontamination Shelter for effective HazMat decontamination. Shelter incorporates a tall profile to accommodate individuals fully outfitted in Level (A) PPE.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Individual Decontamination Shelter for effective HazMat decontamination

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: NBC decontamination of personnel

Chemical Agents: NBC decontamination

Bio Agents: NBC decontamination

TIMs:

- **High Hazard:** NBC decontamination
- **Medium Hazard:** NBC decontamination
- **Low Hazard:** NBC decontamination

Rad/Nuc Materials: NBC decontamination

Decontamination Solutions: End users protocol

Capacity Throughput: 20 people per hour with the following assumptions—3 min for ambulatory and 5 min for nonambulatory using ambulatory only; 12 people per hour with the following assumptions—using nonambulatory only

Set-up Time: 2 min—shelter only

PHYSICAL PARAMETERS

Size: 1.8 m x 1.5 m x 2.7 m (6 ft x 5 ft x 9 ft)

Weight: 107 kg (235 lb) complete system

Power Requirements: Diesel generator 5.5 kw

LOGISTICS

Portability: 1 man portable

Consumables Required: Water

Maintenance Required: Air dry shelter if wet conditions; drain water heater after each use

Maintenance Cost: Not applicable

Use/Reuse: Decontamination apparatus can be cleaned and reused with minimal effort

Shelf Life: Depends on end-users usage (both physical and environmental)

Storage Conditions: Fabric: Heat resistance—77 °C OR -20 °C (170 °F OR -4° F)

Cold resistance: Uses low temperature plasticizers that allow fabric to be creased down to a temp of -54 °C (-65 °F) with no cracking or flaking

Durability: Fabric breaking strength: grab method—warp 160 lb min; fill 140 lb min

Tearing strength: tongue method—warp 25 lb min; fill 18 lb min

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr

SPECIAL PARAMETERS

Operator Skills Required: <8 h provided by manufacturer

Operator Training Required: <8 h provided by manufacturer

Training Available: Yes

Manuals Available: Manuals and CDs

Support Equipment: Not specified

Applicable Regulations: Not specified

GENERAL

ATC/DECON

Model: ATC/DECON

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing



Status: The vendor has responded—7/14/2006

Category: Commercial Decontaminant
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: 3 % to 6 % ATC/DECON is a versatile fire fighting foam
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: 3 % to 6 % ATC/DECON is a versatile fire fighting foam for protection of a wide range of Class B flammable liquid hazards and a decontaminant solution product for CB remediation. 3 % to 6 % ATC is an all synthetic film forming foam designed for protection of water-soluble polar solvents as well as water insoluble hydrocarbon flammable liquids. When used with fresh water and foam generating equipment, 3 % to 6 % ATC is transformed into vapor-blanketing foam to provide extinguishing and securing abilities. When batched mixed at a 50/50 ratio this product produces a decontamination solution proven to neutralize all CB weapons known to man.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: All known CB agents

Bio Agents: All known CB agents

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia National Laboratory's Decon

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Available in 19 L (5 gal) pails, 208 L (55 gal) drums or 1041 L (2750 gal) totes

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: 10 yr

Storage Conditions: Not specified

Durability: Not specified

Environmental Conditions: Above 1.7 °C (35 °F)

Environmental Considerations: Low in toxicity to tested aquatic organisms

Resources: Not specified

Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Not specified

Support Equipment: Foam applicators

Applicable Regulations: Not specified

GENERAL**RDDS M-700****Model:** M-700

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing

**Status:** The vendor has responded—7/14/2006**Category:** Delivery
Type: Liquid—delivery**Unit Cost:** Not specified**Availability:** Not specified**Current Users:** U.S. Olympic Committee—2004 Games

Description: Rapid Deployment Decon System (RDDS) is a plastic systems that utilizes high-quality diaphragm pumps
Decontamination Process: Chemical (neutralizes contaminant)

Application**Equipment decontamination****Application Notes:** Utilizes high-quality diaphragm pumps. The RDDS was chosen and approved by the U.S. Olympic Committee for the 2004 games.**Testing:** Not specified**OPERATIONAL PARAMETERS****Materials Decontaminated:** Not specified**Chemical Agents:** All known CB agents**Bio Agents:** All known CB agents**TIMs:**

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Sandia National Laboratory's Decon**Capacity Throughput:** Not specified**Set-up Time:** Not specified**PHYSICAL PARAMETERS****Size:** Not specified**Weight:** Not specified**Power Requirements:** Not specified**LOGISTICS****Portability:** One man portable in a lightweight steel cart with large diameter wheels to manage rough terrain**Consumables Required:** Decontaminant**Maintenance Required:** Not specified**Maintenance Cost:** Not specified**Use/Reuse:** Not specified**Shelf Life:** Not specified

Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

SIMPLE CAFS
Model: 95-125-250D

US Foam Technologies, Inc.
800 East Cotton St.
Longview, Texas 75602
800-595-3626 (Tel)
877-873-6261 (Fax)
Al Ozment
alozmentt@usfoam.com
Jim Wallace
jwallace@usfoam.com
<http://www.usfoam.com>
U.S. Foam mailing



Status: The vendor has responded—7/14/2006

Category: Delivery
Type: Liquid form

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: US Foam Technologies introduces the Rapid Deployment DECON SIMPLE CAFS Systems 95, 125, and 250 (with diesel option)

Decontamination Process: Chemical (neutralizes decontaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: This RDDS unit is ideally situated for quick response to large scale contamination sites

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified

Chemical Agents: All known CB agents

Bio Agents: All known CB agents

TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia National Laboratory's Decon

Capacity Throughput: Not specified

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: Not specified

Weight: Not specified

Power Requirements: Not specified

LOGISTICS

Portability: Not specified

Consumables Required: Not specified

Maintenance Required: Not specified

Maintenance Cost: Not specified

Use/Reuse: Not specified

Shelf Life: Not specified

Storage Conditions: Not specified
Durability: Not specified
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: Not specified

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Not specified
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

SENTINEL 3

Model: 3

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing



Status: The vendor has responded—7/14/2006

Category: Delivery
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Lightweight self-contained compressed air foam system for immediate use when needed
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Sentinel 3 is easy to use, easy to move, highly efficient self-contained fire fighting system
Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Not specified
Chemical Agents: All known CB agents
Bio Agents: All known CB agents
TIMs:

- **High Hazard:** Not specified
- **Medium Hazard:** Not specified
- **Low Hazard:** Not specified

Rad/Nuc Materials: Not specified
Decontamination Solutions: Sandia National Laboratory's Decon
Capacity Throughput: 227 L (60 gal) finished foam capacity
Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 11.4 L (3 gal) tank with overall dimensions of 66 cm x 22.9 cm x 17.9 cm (26 in x 9 in x 7 in) h, w, diameter
Weight: Loaded weight—20.1 kg (45.2 lb); Empty weight—8.2 kg (18 lb)
Power Requirements: Self-contained

LOGISTICS

Portability: One man hand carry
Consumables Required: Compressed air
Maintenance Required: Annual Inspection
Maintenance Cost: None Required
Use/Reuse: Refillable
Shelf Life: Not specified
Storage Conditions: Not less than -1 °C (30 °F)

Durability: Stainless steel tank
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr limited warranty

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Yes
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

SENTINEL 30

Model: 30

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing



Status: The vendor has responded—7/14/2006

Category: Delivery
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Sentinel 30 is easy to use, easy to move, highly efficient self-contained fire fighting and decontamination system
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Use with First Strike ATC/Decon Foam to kill or neutralize all known CB agents, most nonmetallic pathogens, and many toxic chemicals. Structurally designed and constructed to allow for deployment in the most adverse conditions.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Kills or neutralizes all known CB agents, most nonmetallic pathogens, and many toxic chemicals

Chemical Agents: All known CB agents

Bio Agents: All known CB agents

TIMs:

- **High Hazard:** Many toxic chemicals
- **Medium Hazard:** Many toxic chemicals
- **Low Hazard:** Many toxic chemicals

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia National Laboratory's Decon

Capacity Throughput: 2271 L (600 gal) finished foam capacity

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 114 L (30 gal) tank with overall dimensions of 86 cm x 71 cm x 137 cm (34 in x 28 in x 54 in) h,w,l

Weight: Loaded weight—295 kg (650 lb); Empty weight—181 kg (400 lb)

Power Requirements: Self-contained

LOGISTICS

Portability: Skid or wheel models with handle for one man

Consumables Required: Compressed air

Maintenance Required: Annual Inspection

Maintenance Cost: None Required

Use/Reuse: Refillable

Shelf Life: Not specified
Storage Conditions: Not less than -1 °C (30 °F)
Durability: Rugged steel frame with aluminum air bottles
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr limited warranty

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Yes
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

SENTINEL 60

Model: 60

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing



Status: The vendor has responded—7/14/2006

Category: Delivery
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Sentinel 60 is easy to use, easy to move, highly efficient self-contained fire fighting and decontamination system
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Fire fighting and decontamination system. Use with First Strike ATC/Decon Foam to kill or neutralize all known CB agents, most nonmetallic pathogens, and many toxic chemicals. Structurally designed and constructed to allow for deployment in the most adverse conditions.

Testing: Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Kills or neutralizes all known CB agents, most nonmetallic pathogens, and many toxic chemicals

Chemical Agents: All known CB agents

Bio Agents: All known CB agents

TIMs:

- **High Hazard:** Many toxic chemicals
- **Medium Hazard:** Many toxic chemicals
- **Low Hazard:** Many toxic chemicals

Rad/Nuc Materials: Not specified

Decontamination Solutions: Sandia National Laboratory's Decon

Capacity Throughput: 4542 L (1200 gal) finished foam capacity

Set-up Time: Not specified

PHYSICAL PARAMETERS

Size: 227 L (60 gal) tank with overall dimensions of 86 cm x 102 cm x 203 cm (34 in x 40 in x 80 in) h,w,l

Weight: Loaded weight—735 kg (1620 lb); Empty weight—508 kg (1120 lb)

Power Requirements: Self-contained

LOGISTICS

Portability: Skid or wheel models with hose reel

Consumables Required: Compress air or nitrogen

Maintenance Required: Annual Inspection

Maintenance Cost: None Required

Use/Reuse: Refillable

Shelf Life: Not specified
Storage Conditions: Not less than -1 °C (30 °F)
Durability: Rugged steel frame construction
Environmental Conditions: Not specified
Environmental Considerations: Not specified
Resources: Not specified
Warranty: 1 yr limited warranty

SPECIAL PARAMETERS

Operator Skills Required: Not specified
Operator Training Required: Not specified
Training Available: Not specified
Manuals Available: Yes
Support Equipment: Not specified
Applicable Regulations: Not specified

GENERAL

SENTINEL 120**Model:** 120

US Foam Technologies, Inc.
 800 East Cotton St.
 Longview, Texas 75602
 800-595-3626 (Tel)
 877-873-6261 (Fax)
 Al Ozment
 alozmentt@usfoam.com
 Jim Wallace
 jwallace@usfoam.com
 http://www.usfoam.com
 U.S. Foam mailing

**Status:** The vendor has responded—7/14/2006**Category:** Delivery
Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Sentinel 120 is a highly efficient, self-contained fire fighting and decontamination system**Decontamination Process:** Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Use with First Strike ATC/Decon Foam to kill or neutralize all known CB agents, most nonmetallic pathogens, and many toxic chemicals. Structurally designed and constructed to allow for deployment in the most adverse conditions.**Testing:** Not specified

OPERATIONAL PARAMETERS

Materials Decontaminated: Kills or neutralizes all known CB agents, most nonmetallic pathogens, and many toxic chemicals**Chemical Agents:** All known CB agents**Bio Agents:** All known CB agents**TIMs:**

- **High Hazard:** Many toxic chemicals
- **Medium Hazard:** Many toxic chemicals
- **Low Hazard:** Many toxic chemicals

Rad/Nuc Materials: Not specified**Decontamination Solutions:** Sandia National Laboratory's Decon**Capacity Throughput:** 9085 L (2400 gal) finished foam capacity**Set-up Time:** Not specified

PHYSICAL PARAMETERS

Size: 454 L (120 gal) tank with overall dimensions of 1.02 m x 1.02 m x 2.74 m (40 in x 40 in x 108 in) h,w,l**Weight:** Loaded weight—979 kg (2158 lb); Empty weight—538 kg (1185 lb)**Power Requirements:** Self-contained

LOGISTICS

Portability: Skid or wheel models with hose reel**Consumables Required:** Nitrogen**Maintenance Required:** Annual Inspection**Maintenance Cost:** None Required**Use/Reuse:** Refillable**Shelf Life:** Not specified

Storage Conditions: Not less than -1 °C (30 °F)

Durability: Rugged steel frame construction

Environmental Conditions: Not specified

Environmental Considerations: Not specified

Resources: Not specified

Warranty: 1 yr limited warranty

SPECIAL PARAMETERS

Operator Skills Required: Not specified

Operator Training Required: Not specified

Training Available: Not specified

Manuals Available: Yes

Support Equipment: Not specified

Applicable Regulations: Not specified

**APPENDIX F—DECONTAMINATION EQUIPMENT INDEX AND DATA
SHEETS (NOT EVALUATED)**

**APPENDIX F—DECONTAMINATION EQUIPMENT INDEX AND DATA SHEETS
(NOT EVALUATED)**

ID#	Name	Model/Stock	Manufacturer	Page F-#
1	Integrated Military System	TD-SM-001	Allen-Vanguard, Inc.	F-1
2	Decon Trailer System	Trailer	Base-X, Inc.	F-2
3	Mobile Decontamination System	Model 832	BioTech Systems, Inc.	F-3
4	Portable Decontamination Systems	Model 460	BioTech Systems, Inc.	F-4
5	Portable Decontamination System	Model 610	BioTech Systems, Inc.	F-5
6	Portable Decontamination System	Model 615	BioTech Systems, Inc.	F-6
7	Portable Decontamination System	Model 816	BioTech Systems, Inc.	F-7
8	Portable Decontamination System	Model 824	BioTech Systems, Inc.	F-8
9	Portable Decontamination System	Model 924	BioTech Systems, Inc.	F-9
10	Kelly Decon Glove Booth	Glove Booth	Container Products Corp.	F-10
11	Kelly Decon Systems	Decon System	Container Products Corp.	F-11
12	Cavity Kelly Decon Systems	Cavity Decon System	Container Products Corp.	F-12
13	High Pressure Tool Decon Booth	Decon Booth	Container Products Corp.	F-13
14	Walk-In Decon Chambers	Walk-In Chamber	Container Products Corp.	F-14
15	Optimum Console	OC4-1014, OC4-1218, OC4-1622, OC4-1826, OC4-2424	Crest Ultrasonics Corp.	F-15
16	Delta V-1 Dry Ice Surface Cleaning System	Delta V-1	CryoKinetics	F-16
17	Lightweight Decontamination System	M-17	Engineered Support Systems, Inc.	F-17
18	Special Cleaning System (SCS)	1801 DE	Engineered Support Systems, Inc.	F-18
19	Mobile Mass Decontamination Unit	CAR213-032026000	First Line Technology, LLC	F-19
20	Mobile Decon Shower Unit	DAT 15T	FSI North America	F-20
21	Global Truck Mounted Decontamination System	GL-1800D	Global Ground Support	F-21
22	Global Tactical Mobile Decontamination System	GL-1800TDM	Global Ground Support	F-22

ID#	Name	Model/Stock	Manufacturer	Page F-#
23	Mobile Decontamination Trailer	Trailer	Global Ground Support	F-23
24	Portable Decontamination Shower	Model 8800	Haws Corporation	F-24
25	Portable Decontamination Shower	Model 8810SS	Haws Corporation	F-25
26	Atomizer	Not Specified	Hughes Safety Showers Ltd	F-26
27	Blast Guard Air Foam System	Not Specified	Hughes Safety Showers Ltd	F-27
28	Emergency Response Decontamination Unit	ERDU	Hughes Safety Showers Ltd	F-28
29	Cupola Decon 2	Decon 2	Hughes Safety Showers Ltd	F-29
30	Cupola Decon 5	Decon 5	Hughes Safety Showers Ltd	F-30
31	PORTAdec 1000	1000	Hughes Safety Showers Ltd	F-31
32	PORTAdec 2000	2000	Hughes Safety Showers Ltd	F-32
33	PORTAflex 300	300	Hughes Safety Showers Ltd	F-33
34	PORTAflex 75	75	Hughes Safety Showers Ltd	F-34
35	PORTAflex Cupola	Cupola	Hughes Safety Showers Ltd	F-35
36	Falcon Fixed Site Decontamination System	Falcon FS DS	Intelagard	F-36
37	Compact Decontamination System	CDS 1000-GDS	Karcher Futuretech GmbH	F-37
38	DECOCONTAIN 3000 ELS	3000 ELS	Karcher Futuretech GmbH	F-38
39	Deconjet Trailer 2000	2000	Karcher Futuretech GmbH	F-39
40	Decontain 3000 GDS	3000 GDS	Karcher Futuretech GmbH	F-40
41	Decontamination System for Sensitive Material	DSSM	Karcher Futuretech GmbH	F-41
42	Highly Mobile Decontamination Vehicle	HMDV 3000	Karcher Futuretech GmbH	F-42
43	Rapid Intervention Decontamination System	RIDS-GDS	Karcher Futuretech GmbH	F-43
44	Rapid Intervention Lightweight Decontamination System	RILDS	Karcher Futuretech GmbH	F-44

ID#	Name	Model/Stock	Manufacturer	Page F-#
45	TEP 90	TEP 90	Karcher Futuretech GmbH	F-45
46	USC AB-DEKO	USC AB-DEKO	Karcher Futuretech GmbH	F-46
47	Decongun	DECMDS23	Life Safety Systems, Inc.	F-47
48	Decontamination Sprayer 8	DECMDS18	Life Safety Systems, Inc.	F-48
49	LSS Truck Mounted Decon System	DECMDS25	Life Safety Systems, Inc.	F-49
50	Trailer-Based Decontamination System	DECMDS16	Life Safety Systems, Inc.	F-50
51	2-Lane Decon Shower	DECSS02	Life Safety Systems, Inc.	F-51
52	3-Lane Decon Shower	DECSS03	Life Safety Systems, Inc.	F-52
53	Container-Based Decontamination System	DECMDS17	Life Safety Systems, Inc.	F-53
54	Decon Shower	DECSS01	Life Safety Systems, Inc.	F-54
55	High Capacity Mass Decon System	DECSS04	Life Safety Systems, Inc.	F-55
56	Mass Casualty Incident Shower	DECSS05	Life Safety Systems, Inc.	F-56
57	PF-3	DECSS7	Life Safety Systems, Inc.	F-57
58	Rapid Rescuer Decon System	DECSS06	Life Safety Systems, Inc.	F-58
59	NBC Self Aid Kit	DECCMH18	Life Safety Systems, Inc.	F-59
60	Cabana Systems	Cabana 16	Nor E First Response, Inc.	F-60
61	MEDecon Trailers	Cabana 16(2)	Nor E First Response, Inc.	F-61
62	Decont Emulsion	Not Specified	OWR AG	F-62
63	Decont Foam	Not Specified	OWR AG	F-63
64	Decont Solution	Not Specified	OWR AG	F-64
65	Decont Solution GD-5	GD-5	OWR AG	F-65
66	Cobra	Not Specified	OWR AG	F-66
67	Decofog	Not Specified	OWR AG	F-67
68	Turbofogger	Not Specified	OWR AG	F-68
69	DEDAS Universal Mixing System	Not Specified	OWR AG	F-69
70	TRS 10	Not Specified	OWR AG	F-70
71	RDT-2	RDT-2	OWR AG	F-71

ID#	Name	Model/Stock	Manufacturer	Page F-#
72	TEP Troup Disinfection Station	TEP	OWR AG	F-72
73	HEP Main Disinfection Station	HEP	OWR AG	F-73
74	DMF Multipurpose Decontamination Vehicle	DMF	OWR AG	F-74
75	Decontamination Trailer	Not Specified	OWR AG	F-75
76	Roll On Decontamination	Not Specified	OWR AG	F-76
77	MPD 100	Not Specified	OWR AG	F-77
78	Hot Air Container	Not Specified	OWR AG	F-78
79	Decontamination, Wash, Fire Suppression, De-ice Module (Rapid Response Module)	DWFD	Precision Lift, Inc.	F-79
80	Saberchlor 25	25	Sabre Technical Services	F-80
81	SteriFx Decon Agent	SteriFx	SteriFx, Inc.	F-81
82	mVHP™	First Responder Prototype	Steris Corporation	F-82
83	VHP 100P-H0	00P-H0	Steris Corporation	F-83
84	CAPS CBRIPS™ Contaminant Air Processing System (CAPS™) Chemical, Biological, Radiological Integrated Processing System (CBRIPS™)	1WR-CBRIPS-G, 1WR-CBRIPS-A The U.S. Air Force is working with DLA to establish stock numbers	Survival, Inc.	F-84
85	Special Purpose Expedient Decontamination System	SPEEDS	Technical Solutions Group International (TSGI)	F-85
86	Lightweight Inflatable Decontamination System (LIDS-CBRNE)	LIDS-STA, LIDS-SUP, LIDS-STAG, LIDS-SUPG	Wel-Fab, Inc.	F-86
87	Decon Shower	WS-510	Western Shelter Systems	F-87
88	Decon Shower	WS-55	Western Shelter Systems	F-88
89	Decon Shower	WS-55.S6	Western Shelter Systems	F-89
90	Decon Shower Stand	Stand	Zumro, Inc.	F-90
91	Zumro Pre-Plumbed Shower	Pre-plumbed	Zumro, Inc.	F-91
92	Clarus Room Bio-Decontamination Service (RBDS)	R and R2	BIOQUELL, Inc.	F-92

GENERAL

Integrated Military System

Model: TD-SM-001

Allen-Vanguard, Inc.
 11490 Commerce Park Drive, Suite 360
 Reston, Virginia 20191
 866-747-3590 (Tel, toll free USA and Canada)
 613-747-0723 (Fax)
 sales@allen-vanguard.com
 Request for technical information:
 Allen-Vanguard Corporation
 921 Barton Street
 Stoney Creek, Ontario L8E 5P5
 866-434-4514 (Tel, toll free USA and Canada)
 905-643-8801 (Tel)
 905-643-8824 (Fax)
 Laura Cochrane
 lcochrane@allen-vanguard.com
 partt@allen-vanguard.com
 http://www.allen-vanguard.com
 http://www.rkb.mipt.org/
 Allen-Vanguard brochures



Status: The vendor has responded—6/29/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Please call Allen-Vanguard for current pricing

Availability: 8 wk to 12 wk

Current Users: Allen-Vanguard's Decontamination Systems are currently in service with the military, first responders, police, and fire departments in the U.S.A. and Canada, and other friendly nations

Description: The Integrated Military Decontamination System is a modular, heavy duty, self contained, mobile CBRN decontamination system. Developed for military it uses CASCAD™ for CB agent decontamination and radioactive particle removal missions from: vehicles (tanks, trucks), aircraft, ships, equipment, terrain, asphalt, concrete, buildings, and infrastructures.

Features:

- Fully self-contained (on board electrical generator, chemicals, mixing hoses and nozzles, diesel, heater, and batteries)
- Simple to operate and maintain, operable by one person (controls, water, and chemical refills)
- Capable of pre-wash, decon and post-rinse operations
- Uses CASCAD™ chemicals in a sticky foam: decontaminates CB agents and removes radioactive particles with a single chemistry formulation, which is relatively environmentally friendly; eliminates the aerosol hazard immediately on contact

Decontamination Process: Chemical decontamination

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Explosive blast and CB agent containment and mitigation

Rapid and effective CB decontamination and kill capability

Radiological particle containment and removal capability

Ideal for military operations involving CBRN incidents requiring large scale decontamination

GENERAL

Decon Trailer System

Model: Trailer

Base-X, Inc.
 6051 North Lee Highway
 Fairfield, Virginia 24435
 800-969-8527 (Tel)
 540-377-5002 (Fax)
 sales@base-x.com
 Dan Gilbert
 dgilbert@base-x.com
 http://www.base-x.com



Status: The vendor has responded—9/6/2006

Category: Mobile

Type: Trailer

Unit Cost: In evaluation

Availability: 90 d

Current Users: Not specified

Description: Trailer System

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

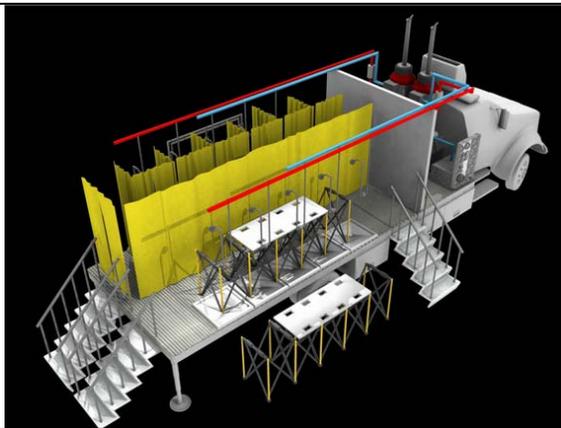
Application Notes: Designed for use in civil or military Major Incident Response (MIR) situations, the complete trailer system can detoxify equipment or personnel as well as radiological decontamination

GENERAL

Mobile Decontamination System

Model: Model 832; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
 http://www.biochemdecon.com



Status: The vendor has responded—6/1/2006

Category: Mobile
Type: Trailer

Unit Cost: \$228K
Availability: 90 d
Current Users: Available on request

Description: Mobile decontamination system (Model 832)

- Deployable and operational in 10 min by 8 technicians
- Estimated casualties 300/h
- Nonambulatory roller system
- Generator
- On-board quiet diesel

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 460; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$43.9K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable Decontamination System (Model 460)

- Deployable and operational in 5 min by 2 technicians
- Estimated casualties 600/h
- Apparatus grade construction
- Estimated 6 h continuous operation
- Scene lighting at 1000 W
- UV germicidal irradiation

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 610; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$63.9K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable Decontamination System (Model 6100)

- Dual decon shelters
- Separating men, women/children
- Deployable and operational in 5 min by 4 technicians
- Estimated casualties 1200/h
- Apparatus grade construction
- Estimated 4 h continuous operation
- Scene lighting at 1000 W
- Storage capabilities
- UV germicidal irradiation

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 615; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$82.9K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable decontamination system (Model 615)

- Same equipment based on Model 610 Generator
- Storage for 6-SCBA kits
- Raised platforms
- Nonambulatory flex system
- Deployable and operational in 5 min by 4 technicians
- Estimated casualties 1200/h
- Estimated 4 h continuous operation
- UV Germicidal Irradiation

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 816; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$72.9K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable decontamination system (Model 816)

- Deployable and operational in 5 min by 6 technicians
- Estimated casualties 1200 per hour
- Apparatus grade construction
- Estimated 6 h of continuous operation
- Scene lighting at 1000 W

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 824; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$105K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable decontamination system (Model 824)

- Deployable and operational in 10 min by 8 technicians
- Estimated casualties 600/h
- Nonambulatory roller system
- Generator
- On-board quiet diesel
- UV germicidal irradiation

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Portable Decontamination System**Model:** Model 924; GSA Contract #: GS-07F-5795P

BioTech Systems, Inc.
 4255 south Buckley Road
 Suite 209
 Aurora, Colorado 80013
 800-247-7998 (Tel)
 Jeff Stevens
 303-288-7976
 biosysinc@msn.com
<http://www.biochemdecon.com>

**Status:** The vendor has responded—6/1/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$210K**Availability:** 90 d**Current Users:** Available on request**Description:** Portable decontamination system (Model 924)

- Deployable and Operational in 10 min by 8 technicians
- Estimated casualties 2400/h
- Nonambulatory roller system
- Grated platform risers
- External hard wall deployable awning system
- Breathable air
- Generator
- On board quiet diesel
- 2000 W scene lighting
- UV germicidal irradiation

Decontamination Process: Physical (removes contaminant)**Application****Personnel decontamination****Application Notes:** Personnel biological and chemical decontamination

GENERAL

Kelly Decon Glove Booth

Model: Glove Booth

Container Products Corp.
 112 North College Road
 P.O. Box 3767
 Wilmington, North Carolina 28406
 910-392-6100 (Tel)
 910-392-6778 (Fax)
 sales@c-p-c.com
 Jeffrey Kahle
 hjksales@c-p-c.com
 http://www.c-p-c.com



Status: The vendor has responded—7/26/2006

Category: Mobile
Type: High pressure water

Unit Cost: \$160K U.S. dollars

Availability: 16 wk ARO

Current Users: Ukraine Government at Chernobyl

Description: Designed specifically for radioactive decontamination, our Decon Glove Booth provides an ergonomic, easy-to-use and reliable decon machine for items such as hand tools, snubbers, lead bricks, pump seals, etc.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: One man glove booth

Decon metal parts

High pressure water

GENERAL

Kelly Decon System**Model:** Decon System

Container Products Corp.
 112 North College Road
 P.O. Box 3767
 Wilmington, North Carolina 28406
 910-392-6100 (Tel)
 910-392-6778 (Fax)
 sales@c-p-c.com
 Jeffrey Kahle
 hjksales@c-p-c.com
 http://www.c-p-c.com

**Status:** The vendor has responded—7/26/2006**Category:** Mobile**Type:** Medium pressure water**Unit Cost:** \$130K U.S. dollars**Availability:** 16 wk ARO**Current Users:** Bruce Power

Description: Dedicated to providing the best Nuclear Grade decontamination equipment available, the KELLY Division of Container Products Corporation can help reduce the percentage of contaminated areas and equipment while minimizing the radioactive waste volume, decon worker radiation exposure, and outage critical path time normally associated with decon operations

Decontamination Process: Physical (removes contaminant)

Application**Equipment decontamination****Infrastructure decontamination**

Application Notes: Removes surface contamination. Medium pressure, hot water.

GENERAL

Cavity Kelly Decon System**Model:** Cavity Decon System

Container Products Corp.
 112 North College Road
 P.O. Box 3767
 Wilmington, North Carolina 28406
 910-392-6100 (Tel)
 910-392-6778 (Fax)
 sales@c-p-c.com
 Jeffrey Kahle
 hjksales@c-p-c.com
 http://www.c-p-c.com

**Status:** The vendor has responded—7/26/2006**Category:** Mobile
Type: High pressure water**Unit Cost:** \$130K**Availability:** 16 wk ARO**Current Users:** Korea Electric Power Corp.

Description: The Container Products Corporation Cavity KELLY System is a long reach cavity tool designed for decontamination of hard to reach areas such as confined spaces, large concrete walls, and stairwells. This system is highly mobile for fast response and highly effective for both small and large jobs. It has an operating pressure to 1000 psi (69 bar)

Decontamination Process: Physical (removes contaminant)

Application**Infrastructure decontamination**

Application Notes: Portable decon system. High pressure water.

GENERAL

High Pressure Tool Decon Booth

Model: Decon Booth

Container Products Corp.
 112 North College Road
 P.O. Box 3767
 Wilmington, North Carolina 28406
 910-392-6100 (Tel)
 910-392-6778 (Fax)
 sales@c-p-c.com
 Jeffrey Kahle
 hjksales@c-p-c.com
 http://www.c-p-c.com



Status: The vendor has responded—7/26/2006

Category: Mobile
Type: High pressure water

Unit Cost: \$160K
Availability: 16 wk ARO
Current Users: Not specified

Description: The KELLY High Pressure Tool Decon Booth is a low cost yet highly reliable unit designed for the efficient decontamination of hand tools and equipment by the use of a 3000 psi (207 bar) spray of water. Constructed entirely of stainless steel, this unit is ideal for the removal of radioactive and hazardous materials from most any type of surface. By filtering the waste water, the system also helps to minimize your waste volume and final disposal costs.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Decon booth, aggressive decon of tools, and high pressure water

GENERAL

Walk-In Decon Chamber

Model: Walk-In Chamber

Container Products Corp.
 112 North College Road
 P.O. Box 3767
 Wilmington, North Carolina 28406
 910-392-6100 (Tel)
 910-392-6778 (Fax)
 sales@c-p-c.com
 Jeffrey Kahle
 hjksales@c-p-c.com
 http://www.c-p-c.com



Status: The vendor has responded—7/26/2006

Category: Mobile
Type: High pressure water

Unit Cost: \$100K

Availability: 12 wk to 16 wk ARO

Current Users: To be determined

Description: Large, heavy items can be quickly decontaminated by using this fully portable, stainless steel containment that attaches to all of Container Products Corporation Decon Systems.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Application Notes: Large decon booth

Decon large parts

High pressure water

GENERAL

Optimum Console**Model:** OC4-1014, OC4-1218, OC4-1622, OC4-1826, OC4-2424

Crest Ultrasonics Corp.
P.O. Box 7266 Scotch Road
Trenton, New Jersey 08628
609-883-4000 (Tel)
Bill Cane
bcane@crest-ultrasonics.com
Dr. Sami Awad (VP Technology)
609-406-7005 (Tel)
http://www.crest-ultrasonics.com

**Status:** The vendor has responded—8/1/2006**Category:** Mobile**Type:** Ultrasonic aqueous or semi-aqueous**Unit Cost:** \$25K to \$75K based on tank sizes**Availability:** Available**Current Users:** Not specified**Description:** System is a four stations console, wash, two rinses and dryer**Decontamination Process:** Physical/chemical (removes contaminant by dissolution or displacement)**Application****Equipment decontamination**

Application Notes: The Optimum Console is an ultrasonic cleaning system designed to clean a wide variety of industrial components. It is available in aqueous or semi-aqueous process models to solve today's high-tech cleaning challenges.

GENERAL

Delta V-1 Dry Ice Surface Cleaning System

Model: Delta V-1

CryoKinetics
 PO Box 782183
 Wichita, Kansas 67278-0330
 316-681-0080 (Tel)
 316-681-0330 (Fax)
 Ray Friend
 rayfriend@cryokinetics.net
 http://www.cryokinetics.com



Status: The vendor has not responded

Category: Delivery
Type: Gas—CO₂

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Dry ice cleaning and dry ice blasting systems and is a pioneer in the automation of dry ice cleaning systems. CryoKinetics dry ice cleaning and dry ice blasting systems utilize small, rice-sized, particles of dry ice as the cleaning media. The particles of dry ice will not generate any secondary waste from the cleaning media. CryoKinetics offers an environmentally safe alternative for mold remediation, fire restoration and general industrial cleaning applications. CryoKinetics' technology utilizes small, rice-sized, particles of dry ice (solid carbon dioxide, CO₂) as the primary cleaning media. Using high velocity air, these particles of dry ice are directed at high velocity towards the surface being cleaned. Upon impacting, the dry ice particles sublime, converting from a solid into a gas, leaving only the removed surface contaminant for disposal. When using dry ice as the cleaning media, CryoKinetics dry ice cleaning technology will not generate any secondary waste stream from the cleaning media.

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Mold remediation, fire restoration, wood working industry, general industrial, electrical, and food processing

GENERAL**Lightweight Decontamination System****Model:** M-17

Engineered Support Systems, Inc.
 Bruce Gibbens
 Tel: 210-659-5954 (Tel)
 Fax: 314-553-4949 (Fax)
 bgibbens@essihq.com
 NBC Handbook
 http://www.engineeredsupport.com

**Status:** The vendor has not responded

Category: **Accessory**
Type: Support (mobile power package)

Unit Cost: Not specified**Availability:** Not specified**Current Users:** Not specified**Description:** Basic unit:

1. Two-stroke diesel engine with centrifugal clutch Tank
2. Multi-fuel heater (uses almost any liquid fuel)
3. Operational life of 1000 h
4. Water pump requires no priming and provides vertical lift of 9 ft (3 m)
5. Heats water to 248 °F (120 °C)
6. Water pressure delivery 35 psig to 135 psig (2.5 kp/cm² to 9.5 kp/cm²)
7. Can be used with a wide variety of decontaminants
8. Weighs 330 lb (150 kg)
9. Fully transistorized electrical control system

Decontamination Process: Chemical (neutralizes contaminant)**Application****Equipment decontamination****Infrastructure decontamination**

Application Notes: The best way to discover how the M17 works is to use it. Despite wearing heavy protective clothing and gloves, you will discover the M-17 is remarkably easy to operate. With multiple uses, the M-17 is an asset for any tactical organization facing operations in a hostile environment. It can mean the difference between life and death. It can make life easier for you and add a new dimension of personal hygiene not normally available in forward areas. You can use the M-17 for corrosion control and to preserve your support equipment. In short, the M-17 will become one of your most valued items of equipment.

GENERAL

Special Cleaning System (SCS)

Model: 1801 DE

Engineered Support Systems, Inc.
 Donald E. Strick
 314-553-4423 (Tel)
 314-553-4949 (Fax)
 dstrick@essihq.com
 NBC Handbook
<http://www.engineeredsupport.com>



Status: The vendor has not responded

Category: Accessory
Type: Support (mobile power package)

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The mobile power package among the high-pressure cleaners. For universal use in all areas of material maintenance.

Also excellently suitable:

- for fire-fighting
- for decontamination after accidents with hazardous materials
- fast mobile maintenance unit, e.g., hot water for showers, system extension and tank degassing

Decontamination Process: Physical and chemical (neutralizes and removes contaminants)

Application

Equipment decontamination

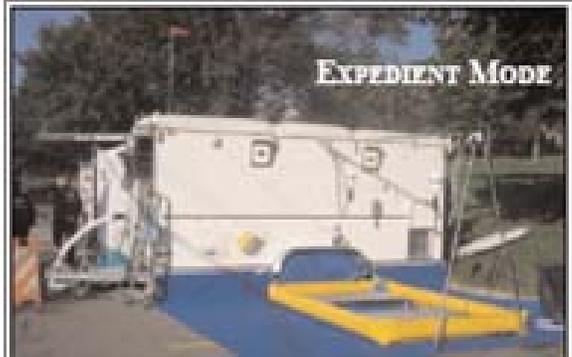
Application Notes: The mobile power package among the high-pressure cleaners. For universal use in all areas of material maintenance.

GENERAL

Mobile Mass Decontamination Unit

Model: CAR213-032026000

First Line Technology, LLC
 3565 Centerview Drive, Unit 4
 Washington, DC 20037
 866-556-0517 (Tel)
 202-318-8480 (Fax)
 Randy Sakowitz
 703-955-7510 (ext. 122)
 rsakowitz@firstlinetech.com
 http://www.firstlinetech.com



Status: The vendor has responded—9/8/2006

Category: Mobile
Type: Trailer

Unit Cost: \$138K

Availability: Manufactured on demand, average lead time: 90 d; no minimum order quantity, other order requirements

Current Users: Not specified

Description: The mobile Mass Decontamination Unit (MMDU) is a rugged, trailer based field decontamination shower system. It is field configurable to meet the needs on the scene. The proprietary flow-through heater design enables the system to raise the temperature of water 30 °C (86 °F) at 32 gpm. This complete system includes electrical and lighting considerations, wastewater collection system, environmental controls, storage/transport, and much more.

Decontamination Process: Physical (spray pressure, removes contaminant, collects contaminant); Chemical (if connected to CAF system or solution injector then removes contaminant, detoxifies)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Mobile Mass Decontamination Unit (MMDU) is a total solution package that is field customizable for (self/buddy, mass casualty, hospital) in expedient and/or thorough decontamination of ambulatory, nonambulatory, PPE and equipment. With options like (194 F) water, solution injectors and compressed air foam (CAF) systems, the MMDU is capable of equipment and infrastructure decontamination.

GENERAL

Mobile Decon Shower Unit

Model: DAT 15T

FSI North America
 A Division of Fire Safety
 International, Inc.™
 311 Abbe Road
 Sheffield Lake, Ohio 44054
 440-949-2400 (Tel)
 440-949-2900 (Fax)
 Joseph Villegas
 villegas@fsinorth.com
 http://www.fsinorth.com



Status: The vendor has responded—9/8/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: \$61K

Availability: Manufactured on demand

Current Users: Military/government sales; fire department sales; airports; EMS/EMA sales; hospital sales; industry; and export distribution/sales

Description: Mobile Self Contained 19 ft Decontamination Mass Casualty Undress/Shower/Redress Unit with generator, clean and brown water holding tanks, detergent injection system

Decontamination Process: Physical (removes decontaminant)

Application

Personnel decontamination

Application Notes: A self-contained trailered mobile cleansing decon unit capable of providing hot H2O/ electricity in a double wide 4 shower head unit in situations where permanent facilities are not available

GENERAL

Global Truck Mounted Decontamination System

Model: GL-1800D

Global Ground Support
 540 East 56 Highway
 Olathe, KS 66061
 913-780-0300 (Tel)
 Bruce Turner
 bturner@global-llc.com
 http://www.globalgroundsupport.com
 Global Ground Support brochure and cd



Status: The vendor has responded—10/11/2006

Category: Mobile
Type: Truck mounted

Unit Cost: Basic unit \$185K, plus customer selected options

Availability: Manufactured on demand

Current Users: United States Army, Kuwait

Description: Truck mounted decontamination system. The unit includes an aerial device with an operating height up to 16 m (52 ft). The system can dispense single or multi-part solutions. Pumping systems are customer selected for their need to dispense liquid based or foam based solution. Compressed Air Foam (CAF) is available for foam based solution.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: Global decontamination systems are designed and engineered for initial response (First Responders) and consequence management of CB and Hazardous TIM incidents. Decontamination of equipment, infrastructure, open areas, and soil/terrain.

GENERAL

Global Tactical Mobile Decontamination System**Model:** GL-1800TDM

Global Ground Support
 540 East 56 Highway
 Olathe, KS 66061
 913-780-0300 (Tel)
 Bruce Turner
 bturner@global-llc.com
<http://www.globalgroundsupport.com>
 Global Ground Support brochure and cd

**Status:** The vendor has responded—10/11/2006**Category:** Mobile
Type: Truck mounted**Unit Cost:** Basic unit \$125K, plus customer selected options**Availability:** Manufactured on demand**Current Users:** Not specified

Description: Skid mounted decontamination system. The unit includes an aerial device with an operating height up to 12 m (39 ft) and is mounted on a NATO CROP skid. The system can dispense single or multipart solutions. Pumping systems are customer selected for their need to dispense liquid based or foam based solution. Compressed Air Foam (CAF) is available for foam based solution. The GL-1800TDM is transported on the Oshkosh PLS system. Smaller capacity system are available for transport using FMTV systems.

Decontamination Process: Chemical (neutralizes contaminant)**Application****Equipment decontamination****Infrastructure decontamination**

Application Notes: Global decontamination systems are designed and engineered for initial response (First Responders) and consequence management of CB and Hazardous TIM incidents. Decontamination of equipment, infrastructure, open areas, and soil/terrain.

GENERAL

Mobile Decontamination Trailer

Model: Trailer

Global Ground Support
 540 East 56 Highway
 Olathe, KS 66061
 913-780-0300 (Tel)
 Bruce Turner
 bturner@global-llc.com
 http://www.globalgroundsupport.com
 Global Ground Support pamphlet



Status: The vendor has responded—10/11/2006

Category: Mobile
Type: Trailer

Unit Cost: Size and features dependent. Varies from \$60k to \$120K.

Availability: Manufactured on demand

Current Users: Not specified

Description: Decontamination Shower Trailer. The trailers are designed to meet customer specifications and needs for ambulatory and nonambulatory decon.

Decontamination Process: Physical (removes contaminant) and chemical (neutralizes contaminant)

Application

Personnel decontamination

Application Notes: Global decontamination trailers are designed and engineered for initial response (first responders) and the processing of Mass Causality decontamination

GENERAL

Portable Decontamination Shower**Model:** Model 8800

Haws Corporation
 1455 Kleppe Lane
 Sparks, Nevada 89431
 775-359-4712 (Tel)
 775-359-7424 (Fax)
 info@hawsco.com
 Helen Papa
 (helen@hawsco.com)
 http://www.hawsco.com

**Status:** The vendor has not responded**Category:** Shelter
Type: Shower stand

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Model 8800 is a portable, lightweight, highly effective, and economical decontamination shower that can be rapidly deployed by one person in less than 2 min. Unit is automatically erected to 2 m (86 in) high once connected with water supply. One overhead nozzle and four-direction pre-set side nozzles provide average 95 L (25 gal) per minute of water to drench entire body thoroughly within seconds. It can be used for decontaminating either stretcher-bound or walking casualties. Multiple units can be easily connected together in tandem for mass decontaminations.

Decontamination Process: Physical (removes contaminant)

Application**Personnel decontamination**

Application Notes: It can be used for decontaminating either stretcher-bound or walking casualties.

GENERAL

Portable Decontamination Shower

Model: Model 8810SS

Haws Corporation
 1455 Kleppe Lane
 Sparks, Nevada 89431
 775-359-4712 (Tel)
 775-359-7424 (Fax)
 info@hawsco.com
 Helen Papa
 (helen@hawsco.com)
 http://www.hawsco.com



Status: The vendor has not responded

Category: Shelter
Type: Shower stand

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Model 8810SS portable stainless steel decontamination shower/eyewash consists of a bottom H-frame, an eyewash assembly, a bend, and an ABS showerhead. One person can rapidly assemble it via unions in less than 2 min. Working pressure: 30 psi to 90 psi. Supply 1 in IPS.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Atomizer

Model: Not specified

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Delivery
Type: Gas

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Portable Ultrasonic Atomizer for decontamination and disinfection, dispenses an atomized solution at a rate of 8 L/h to dampen the contaminated surface without the excessive wetting associated with conventional spray nozzles
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: It is typically used for the decontamination and disinfection of confined areas where germs or bacteria need to be safely eliminated, or where chemicals need to be neutralized

GENERAL

Blast Guard Air Foam System

Model: Not specified

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Delivery

Type: Liquid foam

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The Blast Guard Air Foam system uses pressurized air to force decontamination chemicals from the tank to produce foam. The Blast Guard Air Foam system is capable of filling the small 4 panel Blast Guard tent or doing 130 m2 (1400 ft2) surface decontamination.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Not specified

GENERAL

Emergency Response Decontamination Unit

Model: ERDU

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Mobile

Type: Trailer

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: An Emergency Response Decontamination Unit which is either constructed as a trailer or as a demountable pod. As a fully self-contained unit this can be deployed at the scene of an incident or at the entrance to the A & E department of a hospital. Designed for the decontamination of either stretchered or walking casualties before either entering the ambulance or hospital. Fitted with its own water heater and shower system.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Designed for the decontamination of either stretchered or walking casualties before either entering the ambulance or hospital.

GENERAL

Cupola Decon 2

Model: Decon 2

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The CUPOLA Decon 2 Decontamination unit has evolved from the well proven PORTAflex CUPOLA which has been used throughout the fire and civil defense organizations worldwide. In conjunction with our PORTA heater 100, this unit provides a fully self-contained shower system, capable of coping with either walking or stretchered casualties requiring decontamination. The CUPOLA decon 2 can either be used at the scene of an accident or outside the A & E department of a hospital. A military version is available which has olive green fabric and can incorporate a camouflaged cover.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: capable of coping with either walking or stretchered casualties requiring decontamination. The CUPOLA decon 2 can either be used at the scene of an accident or outside the A & E department of a hospital.

GENERAL

Cupola Decon 5

Model: Decon 5

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: A robust and stable Portable Decontamination unit for mass decontamination of the public or emergency services. It can be deployed in minutes and has five sections, each with separate cubicles for three stage decontamination. A removable inner lining includes an integral sump from which waste water can be easily pumped out for safe disposal and the sump can be fitted with floor panels to ensure the user is not in contact with contaminated waste water. Note: The CUPOLADECON 5 is also available as a 3 or 4 section unit—CUPOLADECON 3 or CUPOLADECON 4.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

PORTAdec 1000

Model: 1000

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: A Portable Shower used to decontaminate protective clothing, or as a temporary Emergency Shower to wash chemicals from the skin. Stored in a heavy duty “hold-all”, it can be erected and ready for use in minutes. The unit comprises a robust foldaway frame with integral hood, disposable side sheeting and sump. The sump incorporates a disposable fiberglass foot grating to ensure the user is not standing in the contaminated run off water.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: A Portable Shower used to decontaminate protective clothing, or as a temporary Emergency Shower to wash chemicals from the skin.

GENERAL

PORTAdec 2000

Model: 2000

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The PORTAdec 2000 Decontamination Shower is a multipurpose unit designed to quickly and efficiently decontaminate people or equipment. Its unique design allows it to contain the contaminant without allowing its main components to be contaminated themselves. The PORTAdec 2000 also duels as a containment sump for leaking containers or contaminated equipment.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: The PORTAdec 2000 Decontamination Shower is a multipurpose unit designed to quickly and efficiently decontaminate people or equipment.

GENERAL

PORTAflex 300

Model: 300

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: A multi-nozzle Portable Decontamination Shower designed to be both lightweight and robust. Can be quickly deployed when needed in cases of major CBRN incident. With “unbreakable” hose legs that become rigid under pressure to give 360° decontamination to the person or object being decontaminated

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination		
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Application Notes: Not specified

GENERAL

PORTAflex 75

Model: 75

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: An economically priced unit, which, in serious accidents, serves as a primary or front line safeguard until such time as a major Decontamination Shower is brought to the scene or is made available. Alternatively, this primary unit may be adequate for minor incidents or where the degree of contamination is not great.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

PORTAflex Cupola

Model: Cupola

Hughes Safety Showers Ltd
 Whitefield Road
 Bredbury, Stockport,
 Cheshire SK6 2SS
 England, UK
 +44(0)161 430 6618 (Tel)
 +44(0)161 430 7928 (Fax)
 U.S. Distributor Aramsco
 Richard Warren
 804-937-4747 (Cell)
 rwarren@aramsco.com
 http://www.hughes-safety-showers.co.uk



Status: The vendor has not responded

Category: Shelter
Type: Shower stand and tent

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: An inflatable Decontamination Shelter used in conjunction with the hose assembly from a PORTAflex 300. Used to contain the contaminated water and eliminate airborne over spray. Fitted with replaceable inner lining, which has windows on two opposite sides to enable the decontamination process to be observed while openings on the other two sides enable personnel to walk through from the dirty area to the clean area. The openings are fitted with drop down splash flaps to eliminate over spray.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Falcon Fixed Site Decontamination System

Model: Falcon FSDS

Intelagard
 590 Burbank Street, Suite 220
 Broomfield, Colorado 80020
 303-306-6309 (Tel)
 800-468-6090 (Tel)
 info@intelagard.com
 Lorraine Cope
 Dennis Smagac
 dsmagac@intelagard.com
 http://www.intelagard.com
 Intelagard brochure from conference



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Truck mounted

Unit Cost: Base system \$130K (trailer only)

Availability: 8 wk to 10 wk

Current Users: In 2004, Intelagard completed a large order of 1030 gal truck/trailer decontamination systems for U.S. Army Central Command (US CENTCOM)

Description: Truck/trailer mounted large-scale CAF dispersal system. Truck mounted high-pressure spray monitor, on-board hose reel, and truck and/or trailer-mounted terrain spray bar for uniform ground coverage. Single polypropylene fluid tank, constructed as (2) 1893 L (500 gal) and (1) 114 L (30 gal) compartments, or use with caged totes in place of tank. Compressor driven, choice of gas or diesel engine.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: CAF system designed specifically for use with Sandia National Laboratories DF-200. May be configured to work with other decontamination formulas as needed. Effectively deploys decontamination formulations as either liquid, air aspirated foam, or compressed air foam. NBC (nuclear extraction/neutralizes chemicals/kills biologicals) chemical decon process, deploys solution as CAF, aspirated foam or liquid.

GENERAL

Compact Decontamination System**Model:** CDS 1000-GDS

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet

**Status:** The vendor has responded—6/28/2006**Category:** Mobile
Type: Frame mounted**Unit Cost:** Upon request**Availability:** Manufactured on demand. Lead time 3 mo.**Current Users:** MODA Saudi Arabia

Description: High performance decontamination system. The frame mounted CDS 1000 GDS comes equipped with all necessary modules, chemicals, and accessories to immediately set up a decontamination site for material, personnel equipment, and terrain decontamination.

Features:

- Simultaneous decontamination of personnel and material.
- 3 decon modules for simultaneous carrying out.
- 3 material decontamination steps: pretreatment, main-treatment, and post-treatment.
- 1000 L (264 gal) water tank on board.
- Quick set up of the system in less than 30 min.
- Reliability. For hot and cold climate.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)**Application****Personnel decontamination****Equipment decontamination****Infrastructure decontamination**

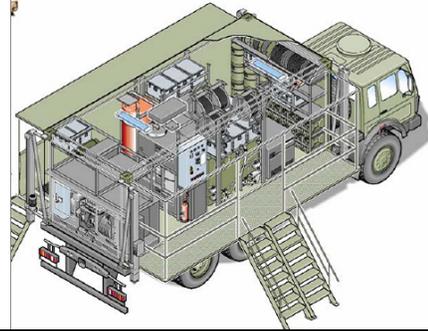
Application Notes: Frame-mounted, compact, fully equipped decontamination system for vehicles, material, and personnel. Specially equipped for the application of the new developed decontamination solution GDS 2000.

GENERAL

DECOCONTAIN 3000 ELS

Model: 3000 ELS

Kärcher Futuretech GmbH
 Alfred-Kärcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Kärcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 8 mo.

Current Users: U.A.E. Armed Forces, Kuwait Armed Forces, and Hungarian Armed Forces

Description: The Kärcher DECOCONTAIN 3000 ELS is especially designed for deployment at battalion level or higher and forms the technical basis for establishing a decontamination site. The DECOCONTAIN 3000 ELS is a new generation, compact, and high-performance decontamination system that is integrated in a standard 6.1 m (20 ft) ISO container. Using the DECOCONTAIN 3000 ELS, practically all essential decontamination tasks can be performed simultaneously, following the use of NBC weapons (e.g., decontamination of material, decontamination of persons, and decontamination of personal equipment). A central power generator guarantees the electrical power supply of all decontamination modules. For personal decontamination the decon system has a shower section integrated into the container. Additionally, decontamination of terrain can be carried out effectively, using an aqueous detoxification solution. Through use of the integrated 3000 L (793 gal) water tank, the DECOCONTAIN 3000 ELS can be used to perform independent decontamination tasks.

Decontamination Process: Thermal, chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Universal highly mobile NBC decontamination system. The technical basis for establishing a decontamination site for the thorough decontamination of persons, vehicles, clothing and equipment.

GENERAL

Deconjet Trailer 2000

Model: 2000

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer towed

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 12 mo.

Current Users: Not specified

Description: Fully equipped decon system, suitable for vehicles, material, and personnel. Specially equipped for the application of the new developed decont solution GDS 2000.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Personnel decontamination—expedient decontamination (self/buddy) and thorough decontamination (self/buddy)

Equipment decontamination [CBR hardened items (e.g., resistant coatings, buttoned up items) and non-CBR hardened items (e.g., plastics, metals, coatings)]

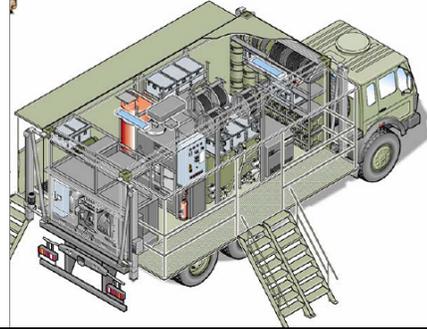
Infrastructure decontamination (confined spaces, open areas, building materials, and soil/terrain)

GENERAL

Decontain 3000 GDS

Model: 3000 GDS

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 8 mo.

Current Users: Swedish Armed Forces

Description: The integrated stainless steel tank 3000 L (793 gal) allows the transport or storage of drinking water.

Features:

- Universally deployable under all climatic conditions.
- Highly effective in the simultaneous decontamination, detoxification and disinfection of personnel, material, clothing and equipment.
- Effective for terrain decontamination.
- Independent operation through use of integrated 3000 L (793 gal) water tank.
- Transportable by track, train, ship or plane.
- Specially designed for deployment at battalion level or higher

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The DECOCONTAIN 3000 GDS is a high-performance decontamination system for simultaneous decontamination of material, persons, clothing, equipment, and terrain. It provides the mobile material basis for a complete decontamination site in a compact form for immediate use.

GENERAL

Decontamination System for Sensitive Material

Model: DSSM

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 8 mo.

Current Users: German Armed Forces and French Armed Forces.

Description: All necessary components and subsystems are integrated into a 6.1 m (20 ft) ISO standard container in sandwich construction so that reliable functioning of the complete system is ensured at temperatures between -15 °C and +49 °C (5 °F and 120.2 °F). The DSSM is constructed so that the "dirty area" is strictly separated from the "clean area." Taking the wind direction into consideration, the station for the decontamination of sensitive material can be unfolded on the decontamination site in accordance with the generally valid decontamination principles. A recontamination of decontaminated sensitive material can be reliably excluded. The decontamination process itself takes place mainly automatically. The DSSM is designed for independent operation. Energy is supplied by the integrated generator. Having filled the tanks with fresh water and decontamination can be continuously carried out for 3 h without refilling. An auxiliary heating is installed to ensure anti-frost protection. The NEMP protected working area is equipped with air-conditioning and an NBCC air-ventilation unit to reduce physical stress. A special heating system ensures the necessary optimal temperature of the decont liquids under winter conditions. All decontamination waste products are collected in a separate foldable tank and can be disposed of separately.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Equipment decontamination

Application Notes: The DSSM decontamination system for sensitive material is able to effectively and reliably deradiate, disinfect and/or detoxify sensitive material and other equipment which can not be treated with other decontamination systems or methods. It works independently of the climate conditions but in accordance with the respective NATO criteria and is the first system that also ensures this performance in the field.

GENERAL

Highly Mobile Decontamination Vehicle

Model: HMDV 3000

Kärcher Futuretech GmbH
 Alfred-Kärcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Kärcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Vehicle chassis

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 10 mo.

Current Users: Jordan Civil Defense

Description: Everything needed for decontamination, including all instruments, decontamination chemicals, and necessary equipment. This all in one feature allows quick and efficient set-up of a complete decontamination site. All these modules are self contained, and can be used independently. They all have an integrated self priming high-pressure pump and their own diesel engine. Personal decontamination takes place inside 2 inflatable tents, each divided into five shower cubicles with single showers. Water with decontaminants or clear water can be selected if necessary.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The Highly Mobile Decontamination Vehicle is a custom built truck completely equipped for the detection, collection, and decontamination of hazardous materials. The operational concept for the vehicle addresses the following focal points:

- The on-site detection and quantification of hazardous materials
- The sealing of leaking or damaged hazardous material containers
- The collection, emptying or transfer of hazardous materials
- Decontamination of NBC-contaminated surfaces, materials and equipment
- Personnel decontamination
- Terrain decontamination

For the decontamination of material, equipment, and road sections the vehicle is equipped with 3 different Kärcher modules:

- MPDS: For the decontamination of clothing and equipment.
- SCS 1801 DE: For the decontamination of vehicles.
- DADS: For the decontamination of vehicles with a decontamination emulsion, or for the decontamination of road sections and terrain.

GENERAL

Rapid Intervention Decontamination System

Model: RIDS-GDS

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Frame mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 12 mo.

Current Users: Portuguese Navy

Description: Fully equipped trailer mounted decontamination system. All components and chemicals necessary for quick decontamination of material and persons on the spot are housed in a framework. Suitable for the application of GDS 2000 decontaminant. The RIDS system stands out due to its high mobility. All appliances, components, and decontamination chemicals needed for carrying out the decontamination tasks are mounted in a framework on a single-axle trailer (with a total admissible weight of 2 ton). Due to this design, a complete decontamination site can be set up quickly and easily in the field, and relocated if needed. A semi-automatic roof framework protects the appliances and operators against the influences of the weather. If an appropriate carrier vehicle is available (e.g., trailer, pick-up or truck) the RIDS 1400 G would be the suitable system version. This system version is also integrated into a framework, however the roof framework is replaced by a weather protection tarpaulin.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

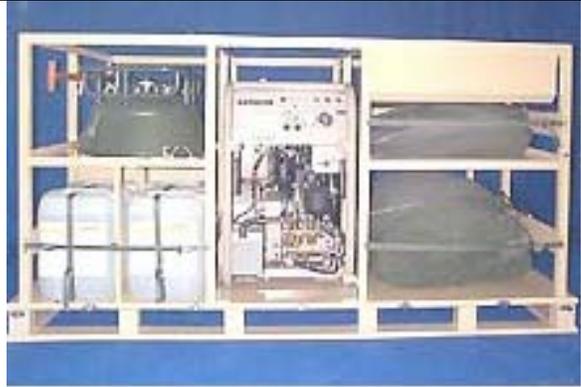
Application Notes: The RIDS 1400 GT-GDS (Rapid Intervention Decontamination System) enables the successful carrying out of the following decontamination tasks directly on site. This includes the decontamination of NBC contaminated surfaces, such as decontamination of vehicles, material, persons, roads and terrain sections. For the decontamination of vehicles the following modules are used: EWP 3000 (Electrical Water Pump), AMGDS 1000 (Module for the Application of GDS 2000), MPDS (Multi-Purpose Decontamination Module). For the decontamination of persons the module HWM 3000 (Hot Water Module) is used.

GENERAL

Rapid Intervention Lightweight Decontamination System

Model: RILDS

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Frame mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 12 mo.

Current Users: U.A.E Armed Forces

Description: Rapid Intervention Lightweight Decontamination System. All components and chemicals necessary for quick decontamination of material and persons on the spot are housed in a framework.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Quick decontamination of materials and persons

GENERAL

TEP 90

Model: TEP 90

Karcher Futuretech GmbH
 Alfred-Karcher-Str. 6-10
 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 8 mo.

Current Users: German Armed Forces

Description: The complete TEP 90 system has a modular structure with the dimensions 6.1 m x 2.4 m (20 ft x 8 x ft). The three decontamination modules comprise all necessary components for carrying out the determined functions. Together with the accessories, operating and auxiliary operating materials, water and decontamination agents, at least 1 h of independent operation is ensured. For temporary storage, transport and use, all components of the TEP 90 are kept safely and reliably in closed containers. The assemblies and components of the individual decontamination modules are based on proven technologies (NBC Defence, NATO and others), or are used in special areas of commerce. Owing to the special upper structure for a cross-country truck with 408 hp and 8 x 8 all-wheel drive, the complete system is immediately available at any time even in off-road locations. It can also be transported by rail, sea, or air.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The TEP 90, a highly mobile containerized compact decon system, represents the state of the art in this specific area with its most modern decon technologies and agents. The vehicle is equipped with a hydraulic crane to make the system ready for operation in short time without using external lifting equipment.

GENERAL

USC AB-DEKO

Model: USC AB-DEKO

Karcher Futuretech GmbH
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 73164 Winnenden, Germany
 +49-71 95-14 24 57 (Tel)
 +49-71 95-14 27 80 (Fax)
 Jun Yao Ong
 futuretech@de.kaercher.com
 wolfgang.kliem@de.kaercher.com
 http://www.kaercher-futuretech.com
 Karcher pamphlet
 Karcher TEP 90 CD



Status: The vendor has responded—6/28/2006

Category: Mobile
Type: Trailer mounted

Unit Cost: Upon request

Availability: Manufactured on demand. Lead time 10 mo.

Current Users: German Fire Brigade

Description: The USC AB-DEKO is a compact decontamination system which is integrated in a container. The environmental protection system offers the fire brigades a universal and mobile system that enables firemen, active on-site in chemical protection clothing, to be lead quickly and without risk from highly contaminated areas to safety.

Decontamination Process: Thermal, chemical (neutralizes contaminant), and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The USC AB-DEKO is complete, universally, and independently usable for the special requirements of fire brigades. It guarantees a quick and reliable immediate decontamination in the case of accidents with highly toxic/hazardous materials during the actions of fire brigades, e.g. decontamination.

GENERAL

Decongung

Model: DECMDS23

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Delivery
Type: Liquid sprayer

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The DECONGUN is a lightweight decontamination solution applicator for decontamination of terrain, equipment, and vehicle exteriors. The DECONGUN uses a reusable canister for BX24 range of decontaminant powders. The DECONGUN incorporates a novel design which mixes decontaminant powder with water from the SANIJET. The DECONGUN is a handheld decontamination applicator designed for use by a single operator and is designed to carry out every operation in the decontamination process.

Decontamination Process: Chemical and physical (neutralizes and removes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: The unique dual action of the DECONGUN enables the operator to load the decontaminant cartridge, prewash the target with high pressure cold water (to remove dirt and grime) then by pulling a single lever, begin spraying low pressure hot water.

GENERAL

Decontamination Sprayer 8

Model: DECMDS18

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Delivery
Type: Liquid sprayer

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The Decontamination Sprayer 8 is used for spraying decontamination emulsion. The sprayer can be an integral part of a military or civil decontamination unit or as a fitting to individual units or vehicles. The practical decontamination sprayer 8 is used for spraying decontamination emulsion on vehicles and equipment.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: The practical decontamination sprayer 8 is used for spraying decontamination emulsion on vehicles and equipment.

GENERAL

LSS Truck Mounted Decon System

Model: DECMDS25

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Mobile
Type: Trailer mounted

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Fully equipped field decon system for personnel, equipment, PPE, and materials. This portable system can be deployed and located where ever the decontamination requirement exists. Versatile systems combines multiple decontamination platforms. Skid mounted. Custom units available.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: Fully equipped field decon system for personnel, equipment, PPE and materials

GENERAL

Trailer-Based Decontamination System

Model: DECMDS16

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Mobile
Type: Trailer

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The decontamination trailer is fully ac equipped and includes water reserve (heated during transportation), electrical power plant, hoses for showers, inflatable tents, suits, etc. During transport, all the required equipment is loaded on the trailer and the towing car. Upon arrival the compressor-inflated decontamination tents are ready for use after about 3 min.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Trailer-1 has all the equipment for performing a complete decontamination of staff and civilians. Trailer-1 can solve tasks without trailer-2 but the two trailers should preferably operate together at the same place in order to carry out the decontamination procedure.

GENERAL

2-Lane Decon Shower

Model: DECSS02

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Prefabricated decontamination design insures state-of-the-art performance, reliability and speed of deployment. Patent pending active curtains saturate patients with 360° of spray with 5 nozzles per station. CamLok connectors allow easy plumbing connection with gloved hands.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Internal ergonomic hand sprayers enable decontamination of nonambulatory casualties with user directed spray (ordered separately)

GENERAL

3-Lane Decon Shower

Model: DECSS03

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Decontamination shelter for effective decontamination of both ambulatory and nonambulatory casualties within the same compact footprint. Patent pending Active Curtains saturate patients with 360° of spray with 5 nozzles per station. System can accommodate either 3 lines of ambulatory decon, or 2 lines ambulatory and 1 nonambulatory. CamLok connectors allow easy plumbing connection with gloved hands.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Curtain set with ground clips to segregate male, female, and nonambulatory patients and providing undress, wash, rinse, and redress stations in the ambulatory lanes

GENERAL

Container-Based Decontamination System

Model: DECMDS17

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Mobile
Type: Trailer mounted

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The container decontamination system is built in a sturdy 6.1 m (20 ft) steel container with a special cargo profile for truck transportation. The container comprises two compartments: machinery compartment and storage space. Between the two compartments there is a stainless, 3000 L (793 gal) reserve which functions as a partition. The machinery is operated from the machine room. During transportation, all required equipment is loaded into the storing compartment. The container is equipped with a heater in order to keep the temperature of the container from going down below 0 °C (32 °F). Air condition equipment prevents the engine room from getting too warm.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: The container comprises two compartments: machinery compartment and storage space

GENERAL**Decon Shower**
Model: DECSS01

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Chamber deploys in a matter of minutes with full airlock functionality and specimen pass through ports. Integral air lock for safety and clear vinyl windows for visibility. Available in either 3 or 5 gurney configurations.

Decontamination Process: Physical (removes contaminants)

Application

Personnel decontamination

Application Notes: Applications:

- Negative Pressure Isolation Chambers
- Waiting Rooms/Surge Capacity
- Intensive Care
- Brochoscopy
- Renal Dialysis
- Triage Chamber

GENERAL

High Capacity Mass Decon System

Model: DECSS04

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: High throughput decontamination shelter for effective decontamination of both ambulatory and nonambulatory casualties within the same compact footprint. Patent pending Active Curtains saturate patients with 360° of spray with 5 nozzles per station. System can accommodate either 3 lines of ambulatory decon, or 2 lines ambulatory and 1 nonambulatory. Large undress, wash, redress space reduces choke points and maximizes throughput. CamLok connectors allow easy plumbing connection with gloved hands.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Prefabricated decontamination design insures state-of-the-art performance, reliability and speed of deployment.

GENERAL

Mass Casualty Incident Shower

Model: DECSS05

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Prefabricated decontamination design insures state-of-the-art performance, reliability and speed of deployment. Single, unobstructed tunnel maximizes patient processing speed. Corrosion resistant anodized aluminum frame with chemical resistant fabric provides for long life and reliability. Integral cloth booms, pre-plumbed Quick Connects and patented articulating frame reduces set-up time, maintains system integrity, and increases functionality.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Single, unobstructed tunnel maximizes patient processing speed

GENERAL

PF-3

Model: DECSS7

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower stand

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The PF-3 Decon Shower is a rapidly field deployable gross decontamination system. All units store in the heavy duty stainless steel case which also forms the shower platform. This unit assembles and is operational in 3 min and can be equipped with either low flow or high flow nozzles.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Rapid Rescuer Decon System

Model: DECSS06

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: Individual decontamination shelter system for effective Hazmat decontamination. Shelter incorporates a tall profile to accommodate individuals fully outfitted in Level (A) PPE. Features and benefits include the following:

- Patented external articulating frame with corrosion resistant anodized aluminum. Design facilitates rapid deployment; shelter can operate with 30 % of frame missing or broken.
- UV stable, fire retardant and chemical resistant fabric on interior provides durability; protects exterior frame from contaminants and expedites post-use clean up
- Ultra lightweight and small footprint allows for easy storage and quick deployment in limited space situations
- On/Off capable shower nozzles on interior fabric saturate patients with 360° of spray

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Individual decontamination shelter system for effective Hazmat decontamination.

GENERAL

NBC Self Aid Kit
Model: DECCMH18

Life Safety Systems, Inc.
 343 Soquel Ave.
 Santa Cruz, California 95062
 831-728-9090 (Tel)
 831-728-1964 (Fax)
 info@lifesafetysys.com
 Bill Conklin
 http://www.lifesafetysys.com



Status: The vendor has not responded

Category: Accessory
Type: Kit (detect and decon)

Unit Cost: Not specified

Availability: LSSI restricts the sales of counter-terrorism, first responder and explosives-related products to authorized government, military, law enforcement, fire, rescue, EMS, SAR, and USAR agencies only

Current Users: Not specified

Description: The kit offers the soldier a complete series of preventive and first aid medications. Absolutely necessary not only in case of C-attacks, but also to alleviate the most common illnesses under training and operational conditions.

Decontamination Process: Chemical (neutralizes contaminant)

Application	
Personnel decontamination	

Application Notes: The kit enables detection and decontamination of liquid chemical agents, as well as first therapy against nerve agent poisoning.

GENERAL

Cabana System
Model: Cabana 16

Nor E First Response, Inc.
 3890 Hammer Drive
 PO Box 30888
 Bellingham, Washington 98226-7629
 866-380-8455 (Tel)
 360-738-6467 (Tel)
 360-738-8043 (Fax)
 Jesse McCall
 sales@nor-e.com
 http://www.nor-e.com



Ambulatory

Non-Ambulatory

Status: The vendor has responded—10/4/2006

Category: **Mobile**
Type: Trailer mounted

Unit Cost: \$88.9K

Availability: In stock, requires less than 60 d lead time, minimum order is 1 unit. Can use purchase order, credit card, contract, or other.

Current Users: Not specified

Description: Cabana decontamination systems are auto-deploying, self-contained, multi-lane, 4 stall (undress/shower/rinse/redress). All units come with a convertible nonambulatory unit (easily converted for ambulatory and assisted decontamination). Nor E Cabanas are multi-disciplinary systems (COLPRO, TFA, mobile medical, decontamination) and isolating containment. All units come with a range of plug-in components. Systems come with propane or diesel mechanical. Sixteen foot units auto-deploy and are interconnecting.

Decontamination Process: Not applicable

Application

Personnel decontamination

Application Notes: Personnel decontamination for expedient and thorough decontamination of self/buddy, mass casualty, and hospital. Long term isolation containment capable.

GENERAL

MEDecon Trailers

Model: Cabana 16(2)

Nor E First Response, Inc.
 3890 Hammer Drive
 PO Box 30888
 Bellingham, Washington 98226-7629
 866-380-8455 (Tel)
 360-738-6467 (Tel)
 360-738-8043 (Fax)
 Jesse McCall
 sales@nor-e.com
 http://www.nor-e.com



Status: The vendor has responded—10/4/2006

Category: Mobile

Type: Trailer

Unit Cost: \$63.8K

Availability: In stock, requires less than 60 d lead time, minimum order is 1 unit. Can use purchase order, credit card, contract, or other.

Current Users: Not specified

Description: The Nor E Cabanas are auto-deploying, self-contained, multi-lane, 4 stall (undress/shower/rinse/redress), multi-disciplinary (COLPRO, TFA, mobile medical, decontamination), and isolating containment. All units come with a convertible nonambulatory unit (easily converted for ambulatory and assisted decontamination). Sixteen foot units are interconnecting and come with a range of plug-in components.

Decontamination Process: Not applicable

Application

Personnel decontamination

Application Notes: Personnel decontamination for expedient and thorough decontamination of self/buddy, mass casualty, and hospital. Long term isolation containment capable.

GENERAL

Decont Emulsion

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded

Category: **Commercial Decontaminant**

Type: Liquid—emulsion

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination**Equipment decontamination****Infrastructure decontamination**

Application Notes: In B contamination, biological warfare agents are rendered harmless through the use of highly effective disinfectants. OWR has the right decontaminants for a variety of purposes: Decontaminating emulsion for disinfecting personnel and nonsensitive equipment, can be mixed in DEDAS X65 or TRS 10. OWR supplies all the necessary chemicals for the emulsion (Xylol, emulsifier IHF, sodium dichlorisocyanurate, talcum and sodium chloride, or, for lower temperatures, calcium chloride). Decontamination solution for cleaning up streets and open areas; can be mixed from water and sodium dichlorisocyanurate in DEDAS X65 and TRS 10.

GENERAL

Decont Foam

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded

Category: **Commercial Decontaminant**

Type: Liquid foam

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Physical (removes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: N decontamination involves the removal of radioactive particles from the skin, clothing or other surfaces. OWR supplies all the necessary chemicals for producing decontaminating foam for N decontamination. It consists of water, A1 (alcylyl sulfonates) and A2 (Na₂ EDTA) and is used in DEDAS X 65 (with a compressor) or in TRS 10 (nozzle must be changed). The decontaminating foam is suitable for buildings, vehicles and nonsensitive equipment. Practice foam is available for exercise purposes.

GENERAL

Decont Solution

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded

Category: Commercial Decontaminant

Type: Liquid

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Decontamination solution for decontaminating streets and open areas, can be mixed from water and sodium dichlorisocyanurate in DEDAS X65 and TRS 10. Decontamination solution GD-5, ready for use and noncorroding, can be used in portable decontamination devices Decofogger, Turbofogger, Cobra, and TRS 10 can be used. The decontamination vapor produced also reaches inaccessible places and is even suitable for sensitive devices. GD-5 is useable for a nearly 100 %-decontamination of VX and GD (nerve and blood agents, see also test report Dugway Proving Ground from 11 April 2001).

GENERAL

Decont Solution GD-5

Model: GD-5

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded

Category: **Commercial Decontaminant**

Type: Liquid

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: Decontamination solution GD-5, ready for use and noncorroding, can be used in portable decontamination devices Decofog, Turbofogger, Cobra and TRS 10 can be used. The decontamination vapor produced also reaches inaccessible places and is even suitable for sensitive devices. GD-5 is useable for a nearly 100 % decontamination of VX and GD (nerve and blood agents, see also test report Dugway Proving Ground from 11 April 2001).

GENERAL

Cobra

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
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 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Delivery
Type: Liquid—sprayer

Unit Cost: Not specified
Availability: Not specified
Current Users: U.S. Specials Ops

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Lightweight, handy device for spraying liquid decontaminating agent, in particular for applying decontamination agent GD-5. The device is so compact that it can be worn by the operative on his/her belt. Cobra works without preliminary pressure. Pressure is only created during application, guaranteeing a high safety standard. The use of GD-5 means that even sensitive equipment can be decontaminated.

GENERAL

Decofog

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
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 +49 (0) 06293/73-1 (Tel)
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 3801 Saltmeadow Court South
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Status: The vendor has not responded

Category: Delivery

Type: Gas

Unit Cost: Not specified

Availability: Not specified

Current Users: U.S. Special Ops

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Infrastructure decontamination

Application Notes: This device used in conjunction with decontaminating agent GD-5 and GD-6 as a system patent in many countries, creates an air-borne decontaminant vapor with a droplet size of 1 μm and thereby also decontaminates otherwise inaccessible parts of vehicles and devices, as well as other hard-to-reach places. GD-5 or GD-6 enables even sensitive equipment such as computers to be decontaminated. Because it applies a nonpermeable coating in several thin layers, the system is environmentally friendly and economical.

GENERAL

Turbofogger**Model:** Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

**Status:** The vendor has not responded**Category:** Delivery
Type: Liquid—fogger

Unit Cost: Not specified
Availability: Not specified
Current Users: U.S. Special Ops

Description: Not specified**Decontamination Process:** Chemical (neutralizes contaminant)**Application****Equipment decontamination**

Application Notes: This explosion-proof aerosol device enables decontamination agent GD-5 also to be applied in areas that are subject to a high risk of fire, e.g. aircraft and their surroundings. The use of GD-5 means that even sensitive equipment can be decontaminated.

GENERAL

DEDAS Universal Mixing System**Model:** Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

**Status:** The vendor has not responded**Category:** Delivery
Type: Liquid—mixer

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified**Decontamination Process:** Not specified**Application****Equipment decontamination**

Application Notes: DEDAS (Direct Emulsion Decontamination Application System) produces decontaminating agents in a very short space of time (emulsions, foams and aqueous solutions, depending on the version). The patented low-pressure mixing system is suitable for all decontamination formulae, can be used for training and real situations and can be fed with fresh or salt water. The variable control unit means that it is possible to mix formulae that have not previously been used. Comes in the DEDAS X65, DEDAS 100 and DEDAS W170.

GENERAL

TRS 10**Model:** Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
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 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

**Status:** The vendor has not responded**Category:** Delivery
Type: Liquid—mixer

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified**Decontamination Process:** Chemical (neutralizes contaminant)**Application****Equipment decontamination**

Application Notes: The portable spraying system developed by OWR enables decontamination agents and emulsions to be mixed under normal pressure or overpressure. TRS 10 is suitable for mixing and producing B and C decontamination agents as well as commercial pesticide, cleaning agents, and disinfectants. For decontaminating foam for N decontamination only the spray nozzle needs to be changed. Because the mixing device and the stopper at the outlet can be removed, the inner chamber is easily accessible and can be cleaned without difficulty. This prevents corrosion and ensures a long service life.

GENERAL**RDT-2****Model:** RDT-2

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
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 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded**Category:** **Mobile****Type:** Cabin**Unit Cost:** Not specified**Availability:** Not specified**Current Users:** Not specified**Description:** Not specified**Decontamination Process:** Chemical (neutralizes contaminant) and physical (removes contaminant)**Application****Personnel decontamination****Equipment decontamination**

Application Notes: The RDT-2 cleaning, disinfection and drying cabin is the result of intensive research and development efforts at OWR. The RDT-2 permits the effective and gentle cleaning of full protection suits, breathing apparatus, personal equipment and tools. The program sequence from preliminary cleaning to drying is individual and can be programmed with ease. The cabin is fitted with two changing stations as standard, although this can be extended to three or four changing stations (RDT-3, RDT-4).

GENERAL

TEP Troup Disinfection Station

Model: TEP

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
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 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile
Type: Vehicle chassis

Unit Cost: Not specified

Availability: Not specified

Current Users: German Army and NATO

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: TEP for company to battalion level

Vehicle chassis: Mercedes 1017 (4 x 4)

Decontamination of vehicles, equipment, personnel, and terrain

NBC decontamination

1500 L mixing container for decontamination agent

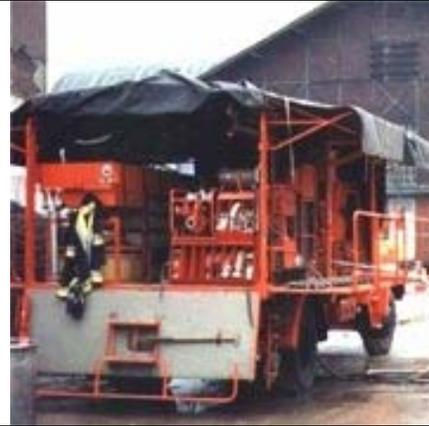
Decontamination agent based on C8 (calcium hypochlorite)

GENERAL

HEP Main Disinfection Station

Model: HEP

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
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 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile
Type: Vehicle chassis

Unit Cost: Not specified

Availability: Not specified

Current Users: German Army and NATO

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: HEP for battalion to division level

Vehicle chassis: MAN 7 mil (KAT Series)

Decontamination of vehicles, equipment, personnel, and terrain

NBC decontamination

2x 1500 l mixing containers for decontamination agent

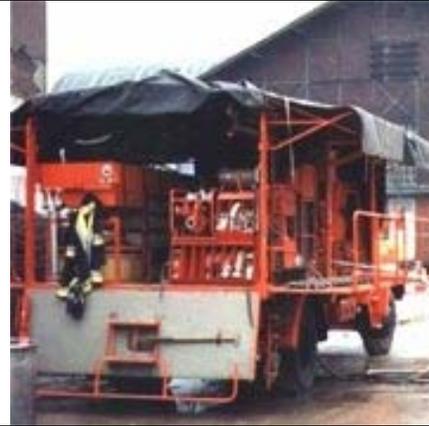
Decontamination agent based on C8 (calcium hypochlorite)

GENERAL

DMF Multipurpose Decontamination Vehicle

Model: DMF

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile
Type: Vehicle chassis

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: DMF for civil defense

Vehicle chassis: MAN 18.168 4 x 4

Decontamination of vehicles, equipment, personnel and terrain

NBC decontamination

1500 l mixing container for decontamination agent

Decontamination agent based on C8 (calcium hypochlorite)

GENERAL

Decontamination Trailer

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
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 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile
Type: Trailer

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: The decontamination systems are mounted on one or two-axled trailers and have their own power supplies, enabling them to reach performance levels almost equal to those of larger systems. Vehicles with a tractive force of 2 tons are required for transport purposes.

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The decontamination trailer is also used to decontaminate terrain and is suitable as a full-power aggregate for decontaminating equipment. The cover of the trailer (tarpaulins and tarp hoops) can be removed for use as a shower cabin for up to 6 people.

GENERAL

Roll On Decontamination

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
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 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile

Type: Trailer

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Application Notes: The system installed in a 6.1 m (20 ft) ISO container with roll-on frame and which has its own power supply, is suitable for transportation on all vehicles with their own roll-on system. It is mainly used in civil defense. Up to 240 people can be decontaminated per hour or, in conjunction with DEDAS, up to 40 vehicles. A special airport system permits use in airports for the decontamination of persons and baggage.

GENERAL

MPD 100

Model: Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
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 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de



Status: The vendor has not responded

Category: Mobile

Type: Trailer

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant) and physical (removes contaminant)

Application

Personnel decontamination

Equipment decontamination

Infrastructure decontamination

Application Notes: The fully containerized high performance system is suitable for the large-scale decontamination of personnel, equipment, vehicles, terrain and sensitive devices. The MPD 100 enables up to 240 persons, 20 large vehicles or 6 km (3.7 mi) of roadway to be decontaminated per hour. At the same time MPD 100 is highly mobile and can be operated by just 3 people.

GENERAL

Hot Air Container**Model:** Not specified

OWR AG
 Oberschefflenzer Str. 9 D-74834
 Elztal-Rittersbach, Germany
 +49 (0) 06293/73-1 (Tel)
 +49 (0) 06293/73-219 (Fax)
 welcome@owr.de
 Paul and Debra Erickson
 3801 Saltmeadow Court South
 Jacksonville, Florida 32224
 904-821-0778
 perickson1@comcast.net
 http://www.owr.de

Status: The vendor has not responded**Category:** Accessory**Type:** Support (Container hot air)**Unit Cost:** Not specified**Availability:** Not specified**Current Users:** Not specified**Description:** Not specified**Decontamination Process:** Physical (removes contaminant)**Application****Equipment decontamination**

Application Notes: The OWR Hot Air Container enables contaminated protective clothing to be decontaminated, even under extreme climatic conditions. The system operates with hot air [60 °C, extendable to 170 °C (140 °F to 338 °F)]. Up to 100 suits can be decontaminated at the same time. The system is installed in a 6.1 m (20 ft) ISO container and has an extending roll-on system. The design permits operation at temperatures as low as -30 °C (-22 °F).

GENERAL

Decontamination, Wash, Fire Suppression, De-ice Module (Rapid Response Module)

Model: DWFD

Precision Lift, Inc.

<http://www.precision.rotor.com/trialpgs/dwfd-module.shtml>**Status:** The vendor has not responded**Category:** Delivery**Type:** Liquid or foam**Unit Cost:** Not specified**Availability:** Not specified**Current Users:** Not specified

Description: PLI's DWFD Module is a multi-purpose system for applying liquids—to decontaminate, wash down, or de-ice aircraft, vehicles, and equipment and for fire suppression. The multifunctional design of the DWFD Module equips Civil Support Teams and other quick response units with a variety of new disaster mitigation tools—all contained within a compact logistical transport package. From fire suppression to bio-decontamination, PLI's DWFD Module delivers. The module also functions as an aircraft cleaning and deicing system (ACDS).

Decontamination Process:

Application

Personnel decontamination

Equipment decontamination

Application Notes: The DFWD Module is used to decontaminate aircraft, vehicles, small areas, and personnel. Several decontamination solutions are available to military and first responder units for use against chemical and biological agents. Using the DWFD module, they are sprayed on as a liquid or applied as a foam. Foam increases the contact time for a decon solution to do its work. The Agent/Foam Mixer on the DWFD Module dispenses concentrate into the output stream at the appropriate mix ratio. With 46 m (150 ft) of hose and with nozzles for straight stream, fog, or foam, the DWFD Module has a "long reach" for decontaminating aircraft and vehicles. Decontamination of personnel; for example, using a decontamination shower, requires controlling the temperature. The DFWD Module has a water heater and temperature control unit to supply decontamination solution at the correct temperature.

GENERAL**Saberchlor 25****Model:** 25

Sabre Technical Services
 17 Computer Dr. East
 Albany, New York 12205
 518-810-0126 (Tel)
 518-810-0131 (Fax)
 info@sabretechservices.com

Pam Morrison

<http://www.sabretechservices.com>

Status: The vendor has not responded

Category: **Commercial Decontaminant**

Type: Liquid—ClO₂

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant)

Application**Infrastructure decontamination**

Application Notes: Chlorine dioxide (ClO₂) is a powerful yet selective oxidizing agent. It is a greenish yellow gas at room temperature that is very soluble in water. Unlike chlorine, ClO₂ is not a chlorinating agent and pure ClO₂ does not form THMs, and it doesn't chlorinate organics. It also doesn't react with water to form free chlorine or react with ammonia to form chloramine. Additionally, ClO₂ is soluble in water, is less corrosive than chlorine and has efficacy across a broad pH range.

GENERAL

SteriFx Decon Agent

Model: SteriFx

SteriFx, Inc.
 InterTech Science Park
 1431 Dalzell St.
 Shreveport, Louisiana 71103
 318-425-2515 (Tel)
 318-425-1288 (Fax)
 Steve M.
 qa@sterifx.com
 http://www.sterifx.com

Status: The vendor has not responded

Category: **Commercial Decontaminant**

Type: Liquid—noncorrosive and nontoxic

Unit Cost: Not specified

Availability: Not specified

Current Users: Not specified

Description: Not specified

Decontamination Process: Chemical (neutralizes contaminant)

Application**Personnel decontamination****Equipment decontamination**

Application Notes: SteriFx can also provide for chemical and biological decontamination systems with a unique combination of efficacy and safety. The noncorrosive and nontoxic properties of the technology allows decontamination of military materiel and personnel, as well as civilian emergency equipment, emergency personnel, and even civilians exposed to such agents. SteriFx is developing products to be incorporated into water hoses, portable applicators, as well as foggers to decontaminate large equipment and buildings.

GENERAL

mVHP™**Model:** First Responder Prototype

Steris Corporation (check this)
 5960 Heisley Road
 Mentor, Ohio 44060-1834
 800-444-9009 (Tel, U.S. only)
 440-354-2600 (Tel, International)
 Kevin Marsh
 kevin_marsh@steris.com
 http://www.steris.com

**Status:** The vendor has not responded**Category:** **Commercial Decontaminant****Type:** Gaseous H₂O₂

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Modified vaporized hydrogen peroxide (mVHP™) is a gaseous decontaminant developed under a Cooperative Research and Development Agreement (CRADA) between the U.S. Army's Edgewood Chemical Biological Center (ECBC) and STERIS Corporation. Vaporized hydrogen peroxide (VHP®) has been employed as a sterilant in the pharmaceutical industry for more than a decade to provide a sterile manufacturing environment for sensitive pharmaceuticals, surgical instruments, implants, etc. VHP is rapidly sporicidal, provides broad range antimicrobial efficacy, and offers excellent materials compatibility. The CRADA between STERIS and ECBC was established to evaluate the suitability of VHP for the decontamination of chemical warfare agents (blister and nerve agents). Initial testing showed VHP to be effective against VX and HD. The addition of ammonia was shown to increase the efficacy against VX and to provide efficacy against GD. This hydrogen peroxide / ammonia combination is called modified vaporized hydrogen peroxide (mVHP).

Decontamination Process: Chemical (neutralizes contaminant)

Application**Equipment decontamination**

Application Notes: The Cooperative Research and Development Agreement (CRADA) between Steris and Edgewood Chemical Biological Center (ECBC) was established to evaluate the suitability of VHP technology for the decontamination of chemical warfare agents. The addition of ammonia was shown to increase the efficacy against VX and provide efficacy against GD.

GENERAL

VHP 100P-H0
Model: 00P-H0

Steris Corporation
 5960 Heisley Road
 Mentor, Ohio 44060-1834
 800-444-9009 (Tel, U.S. only)
 440-354-2600 (Tel, International)
 Kevin Marsh
 kevin_marsh@steris.com
 http://www.steris.com



Status: The vendor has not responded

Category: Delivery
Type: Liquid—delivery

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified
Decontamination Process: Chemical (neutralizes contaminant)

Application

Equipment decontamination

Application Notes: Not specified

GENERAL

CAPS CBRIPS™ Contaminant Air Processing System (CAPS™) Chemical, Biological, Radiological Integrated Processing System (CBRIPS™)**Model:** 1WR-CBRIPS-G, 1WR-CBRIPS-A

Survival, Inc.
 2633 Eastlake Ave East
 Suite 103
 Seattle, Washington 98102
 800-292-4707 (Tel)
 206-726-0130 (Fax)
 Rick Stewart
 ricks@survivalinc.com
 Keri Kliemann
 kerik@survivalinc.com
 http://www.survivalinc.com

**Status:** The vendor has responded—6/27/2006**Category:** Mobile
Type: Trailer mounted**Unit Cost:** \$20.3K—MSRP

\$19.3K—GSA buyers

Component costs—contact vendor. GSA contract GS-07F-0003H

Accessory costs—Contact vendor. GSA contract GS-07F-0003H

Availability: Manufactured on demand; 30 d to 90 d lead time; minimum order not required**Current Users:** United States Air Force—300+ units—10 yr—CMSgt Marita Woodsv850-283-6142; Mr Troy Stalvey 850-283-6161

United States Air Force—300+ units—10 yr—CMSgt Rich Robichaud—703-697-6066

US Air National Guard—200+ units—10 yr—CMSgt Jerry Stoddard—703-607-3439

Description: Survival Inc. has developed CAPS CBRIPS™ for aircrew and ground crew personnel contaminated with CBRN contamination. The system is able to process personnel wearing several personal protective equipment (PPE) configurations used by military personnel and first responders. These configurations include Battle Dress Overgarment (BDO), Chemical Protective Overgarment (CPO), Joint Fire Fighter (JFIRE) protective suit (uses the CPO worn under silver bunker gear with SCBA), Level A HAZMAT suit, and aircrew protective suit with Aircrew Emergency Respiratory Protection (AERP) mask. The system's innovative design allows it to be deployed to process personnel wearing or using many types of protective equipment. CAPS CBRIPS™ is very versatile tool for the military and first responders and can be deployed to process a small group of contaminated individuals or quickly expanded for larger numbers of personnel.

Decontamination Process: Chemical and physical**Application****Personnel decontamination**

Application Notes: The Contaminant Air Processing System™ (CAPS™) is a compact, self-contained, mobile system that provides all the necessary components required for efficient and safe systematic processing of personnel wearing contaminated CB, or hazardous materials protective gear. Specialized components and procedures make CAPS™ effective for both ground support personnel (e.g., disaster response teams, medical response units (including hospitals), hazmat crews, field engineers, fire control, security forces) and for aircrew.

GENERAL

Special Purpose Expedient Decontamination System

Model: SPEEDS

Technical Solutions Group International (TSGI)
 3864 Las Vegas, Nevada 89129
 702-656-5482 (Tel)
 702-212-6588 (Fax)
 Eric Abraham
 700-604-2638 (Tel)
 abe@TSGI.cc
 http://www.TSGI.cc



Status: The vendor has not responded

Category: Delivery
Type: Liquid—delivery

Unit Cost: \$3.5K to \$45K depending on kit
Availability: Not specified
Current Users: Defense Threat Reduction Agency; Applied Marine Technology, Inc., U.S. State Department; Pentagon Force Protection; Central Intelligence Agency (CIA); Illinois State Police; Department of Energy; and U.S. Navy

Description: The SPEEDS Expedient Personnel Decontamination System (EPDS) is a tactical, self contained, independent and fully validated wet decontamination process (biological and radiological agents) and dry decontamination process (chemical agents) field personnel decontamination system. Highly portable, the SPEEDS system permits rapid removal of personal protective equipment and effective decontamination of up to 24 personnel involved in a Chemical, Biological; Radiological or Nuclear (CBRN) event. The SPEEDS system is designed especially for tactical operations.

Decontamination Process: Physical (removes decontaminant)

Application

Personnel decontamination

Application Notes: The SPEEDS CBRN decontamination system is designed to directly support the tactical operations mission by providing a rapid, effective and versatile CBRN decontamination capability in the event of a CBRN incident.

GENERAL

Lightweight Inflatable Decontamination System (LIDS-CBRNE)

Model: LIDS-STA, LIDS-SUP, LIDS-STAG, LIDS-SUPG

Wel-Fab, Inc.
 P.O. Box 86
 Lumberton, New Jersey 08048
 Paul Elstone, Sr.
 Paul Elstone, Jr.
 888-275-0881 (Tel)
 609-267-6751 (Fax)
 pjestone@wel-fab.com
 paulelstone@wel-stone.com
 David DeLano
 daviddelano@wel-fab.com
<http://wel-fab.com/products.asp>
 Sol #: NIST-OLES-0002



Status: The vendor has not responded

Category: Shelter
Type: Multipurpose

Unit Cost: \$28.1K—Standard decontamination system
 \$32.5K—Supreme decontamination system
 \$1.85K—Collapsible equipment rack
 \$450—Equipment rack wheels
Availability: 45 day delivery
Current Users: Not specified

Description: Wel-Fab, Inc. has teamed up with Zodiac Air Cruisers to produce a Lightweight Inflatable Decontamination System (LIDS) for rapid decontamination processing. LIDS is an all-inclusive lightweight, inflatable, and immediate decontamination system that is made from lightweight thermobonded material. The LIDS supplies personnel with required resources to manage an Aircrew/Groundcrew Contamination Control Area (ACCA/GCCA). All shelters come complete with overhead protection, which shields from the sun and weather. This system was designed for use during day and night operations.

Decontamination Process: Not specified

Application

Personnel decontamination	Equipment decontamination
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Application Notes: The Lightweight Inflatable Decontamination System (LIDS-CBRNE) is a compact, lightweight self contained portable decontamination system. This system is essential to sustain operations in a chemical, biological, radiological, nuclear, and explosive environment. It provides control entry areas, effective contamination avoidance procedures (J-FIRE, HAZ-A, GROUND, AIRCREW) and limits the spread of contamination into toxic free areas (TFA).

GENERAL

Decon Shower
Model: WS-510

Western Shelter Systems
 PO Box 2729
 830 Wilson Street
 Eugene, Oregon 97402
 541-344-7267 (Tel)
 877-971-7201 (Tel)
 541-284-2820 (Fax)
 wss@westernshelter.com
 JJ Eurhausen
 jjeurhausen@westernshelter.com
 Paul Bennett
 pbennett@westernshelter.com
 http://www.westernshelter.com



Status: The vendor has not responded

Category: Shelter
Type: Shower system

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Compact packaging for ease of storage, transport and handling. Portable, one-piece packaging weighs 71 kg (156 lb) and measures 1.6 m x 0.56 m x 5.5 m (62 in x 22 in x 216 in). Unit has three sections, which include an “UNDRESS”, “SHOWER” and “REDRESS” area with heater duct inlets and disposal duct outlet. Superbly designed for storage in a standard vehicle compartment and easy handling by one man or two. Ingenuity is demonstrated with only eight components needed for complete assembly in less than 4 min with no tools required.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Decon Shower

Model: WS-55

Western Shelter Systems
 PO Box 2729
 830 Wilson Street
 Eugene, Oregon 97402
 541-344-7267 (Tel)
 877-971-7201 (Tel)
 541-284-2820 (Fax)
 wss@westernshelter.com
 JJ Eurhausen
 jjeurhausen@westernshelter.com
 Paul Bennett
 pbennett@westernshelter.com
 http://www.westernshelter.com



Status: The vendor has not responded

Category: Shelter
Type: Shower stand and tent

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Compact packaging for ease of storage, transport and handling. Portable, one-piece packaging weighs 46 kg (102 lb) and measures 157 cm x 41 cm x 30.5 cm (62 in x 16 in x 12 in). Designed for storage in a standard vehicle compartment and easy handling by one man or two. Simplicity becomes a solution. Only six components needed for complete assembly in less than 2 min with no tools required. Unique to the Model WS-55 Decon-Shower, and a key ingredient to its effectiveness, are its 5 fully-adjustable spray nozzles.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Decon Shower
Model: WS-55.S6

Western Shelter Systems
 PO Box 2729
 830 Wilson Street
 Eugene, Oregon 97402
 541-344-7267 (Tel)
 877-971-7201 (Tel)
 541-284-2820 (Fax)
 wss@westernshelter.com
 JJ Eurhausen
 jjeurhausen@westernshelter.com
 Paul Bennett
 pbennett@westernshelter.com
 http://www.westernshelter.com



Status: The vendor has not responded

Category: Shelter
Type: Shower stand and tent

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Same as WS-55 with a water containment system. Compact packaging for ease of storage, transport and handling. Portable, one-piece packaging weighs 46 kg (102 lb) and measuring just 157 cm x 41 cm x 30.5 cm (62 in x 16 in x 12 in). Designed for storage in a standard vehicle compartment and easy handling by one man or two. Ingenuity is demonstrated with only six components needed for complete assembly in less than 2 minutes with no tools required. Unique to the Model WS-55 Decon-Shower, and a key ingredient to its effectiveness, are its 5 fully-adjustable spray nozzles. With the overhead 2-GPM nozzle adjustable but stationary, the other four 1-GPM nozzles feature specially designed magnetic bases that can be positioned anywhere on the bright-plated and powder-coated shower frame. This allows for a precise and thorough wash down while minimizing (6-GPM) wash water recovery.

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Not specified

GENERAL

Decon Shower Stand

Model: Stand

Zumro, Inc.
P.O. Box 696
Hatboro, Pennsylvania 19040
800-932-6003 (Tel)
215-957-6501 (Fax)
info@zumro.com
Chrissy Gagliardi
chrissy@zumro.com
http://www.zumro.com



Status: The vendor has not responded

Category: Shelter
Type: Shower stand

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified
Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: Single unit, can be used in all shelters, available with hand-held shower wand

GENERAL

Zumro Pre-Plumbed Shower

Model: Pre-plumbed

Zumro, Inc.
P.O. Box 696
Hatboro, Pennsylvania 19040
800-932-6003 (Tel)
215-957-6501 (Fax)
info@zumro.com
Chrissy Gagliardi
chrissy@zumro.com
http://www.zumro.com



Status: The vendor has not responded

Category: Shelter

Type: Shower stand

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Not specified

Decontamination Process: Physical (removes contaminant)

Application

Personnel decontamination

Application Notes: ZUMRO's new Pre-Plumbed Showers have Hand-Held Decon showers and fixed Rinse Showers preplumbed with nonkink hoses. The Pre-Plumbed system allows connection of water supply lines during Shelter deployment.

GENERAL

Clarus Room Bio-Decontamination Service (RBDS)

Model: R and R2

BIOQUELL, Inc.
 101 Witmer Road, Suite 400
 Horsham, Pennsylvania 19044
 215-682-0225 (Tel)
 800-617-0225 (Tel)
 215-682-0395 (Fax)
 London
 +44 (0) 1264 835 (Tel)
 Charles.bowers@bioquell.com
 http://www.bioquell.com



Status: The vendor has not responded

Category: Delivery
Type: Gaseous H₂O₂

Unit Cost: Not specified
Availability: Not specified
Current Users: Not specified

Description: Low-temperature, residue-free bio-decontamination solutions. The Clarus™ C hydrogen peroxide gas generator is installed world-wide giving reliable, continuous bio-decontamination of isolators, clean rooms, pass through devices and many other applications in tightly-controlled pharmaceutical manufacturing environments. Instrumentation developed by BIOQUELL provides true validateable parametric control, ensuring optimal performance regardless of changes in operating or environmental conditions. The patented process monitors and adjusts critical parameters without operator input, to achieve repeatable consistent results. BIOQUELL has developed a number of techniques to rapidly reduce the H₂O₂ concentration below the Operator Exposure Level (OEL) of 1 ppm in rooms or larger enclosures. The patented Dual Loop technology optimises the process to operate at low temperatures using a minimal amount of standard high grade 30 % to 35 % hydrogen peroxide solution, leaving no problematic residues.

Decontamination Process: Chemical (neutralizes contaminant)

Application

Infrastructure decontamination

Application Notes: Pharmaceutical, biotechnology, biomedical, healthcare, bio-terrorism, food, and environmental applications. Clarus™ H₂O₂ vapor generators can be used to bio-decontaminate a wide range of laboratory and aseptic processing equipment in pharmaceutical manufacturing, R&D, biologics, hospitals, biomedical, and life sciences departments. H₂O₂ vapor has been used extensively in the pharmaceutical industry for many years as the vapor is compatible with most materials, including electronics, and has been proven to be highly effective, particularly against bacterial endospores.