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Law Enforcement and Corrections Standards and Testing Program

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

NIJ Guide 103–00

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ABOUT THE LAW ENFORCEMENT AND CORRECTIONS STANDARDS AND TESTING PROGRAM

The Law Enforcement and Corrections Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), U.S. Department of Justice. The program responds to the mandate of the Justice System Improvement Act of 1979, directed NIJ to encourage research and development to improve the criminal justice system and to disseminate the results to Federal, State, and local agencies.

The Law Enforcement and Corrections Standards and Testing Program is an applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationally and internationally.

The program operates through:

The *Law Enforcement and Corrections Technology Advisory Council* (LECTAC), consisting of nationally recognized criminal justice practitioners from Federal, State, and local agencies, which assesses technological needs and sets priorities for research programs and items to be evaluated and tested.

The *Office of Law Enforcement Standards* (OLES) at the National Institute of Standards and Technology, which develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The standards are based upon laboratory testing and evaluation of representative samples of each item of equipment to determine the key attributes, develop test methods, and establish minimum performance requirements for each essential attribute. In addition to the highly technical standards, OLES also produces technical reports and user guidelines that explain in nontechnical terms the capabilities of available equipment.

The *National Law Enforcement and Corrections Technology Center (NLECTC)*, operated by a grantee, which supervises a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured. The facilities, personnel, and testing capabilities of the independent laboratories are evaluated by OLES prior to testing each item of equipment, and OLES helps the NLECTC staff review and analyze data. Test results are published in Equipment Performance Reports designed to help justice system procurement officials make informed purchasing decisions.

Publications are available at no charge through the National Law Enforcement and Corrections Technology Center. Some documents are also available online through the Internet/World Wide Web. To request a document or additional information, call 800–248–2742 or 301–519–5060, or write:

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

NIJ Guide 103–00 Volume II

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We wish to acknowledge the Interagency Board (IAB) for Equipment Standardization and Interoperability. The IAB (made up of government and first responder representatives) was commissioned by the Attorney General of the United States in conjunction with the Department of Defense's Director of Military Support. The IAB 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.[3]

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

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Chemical Systems and Materials, and
Kathleen M. Higgins, Director of OLES.

[3]The Marshall Convention, Standardized Weapons of Mass Destruction (WMD) Response Force Equipment and InterOperability, 2 to 4 November 1999.

FOREWORD

The Office of Law Enforcement Standards (OLES) of the National Institute of Standards and Technology (NIST) furnishes technical support to the National Institute of Justice (NIJ) program to support law enforcement and criminal justice in the United States. OLES's function is to develop standards and conduct research that will assist law enforcement and criminal justice agencies in the selection and procurement of quality equipment.

OLES is: (1) subjecting existing equipment to laboratory testing and evaluation, and (2) conducting research leading to the development of several series of documents, including national standards, user guides, and technical reports.

This document covers research conducted by OLES under the sponsorship of NIJ. Additional reports as well as other documents are being issued under the OLES program in the areas of protective clothing and equipment, communications systems, emergency equipment, investigative aids, security systems, vehicles, weapons, and analytical techniques and standard reference materials used by the forensic community.

Technical comments and suggestions concerning this guide are invited from all 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.

Sarah V. Hart, Director
National Institute of Justice

CONTENTS

COMMONLY USED SYMBOLS AND ABBREVIATIONS

A	ampere	H	Hour	Ω	ohm
ac	alternating current	Hf	high frequency	p.	page
AM	amplitude modulation	Hz	Hertz	Pa	pascal
cd	candela	i.d.	inside diameter	pe	probable error
cm	centimeter	In	Inch	pp.	pages
CP	chemically pure	IR	Infrared	ppm	parts per million
c/s	cycle per second	J	Joule	qt	quart
d	day	L	Lambert	rad	radian
dB	decibel	L	Liter	rf	radio frequency
dc	direct current	Lb	Pound	rh	relative humidity
°C	degree Celsius	Lbf	pound-force	s	second
°F	degree Fahrenheit	Lbf·in	pound-force inch	SD	standard deviation
dia	diameter	Lm	Lumen	sec.	section
emf	electromotive force	Ln	logarithm (base e)	SWR	standing wave ratio
eq	equation	µ	Micron	uhf	ultrahigh frequency
F	farad	Min	Minute	UV	ultraviolet
fc	footcandle	Mm	Millimeter	V	volt
fig	figure	Mo	Month	vhf	very high frequency
FM	frequency modulation	Mph	miles per hour	W	watt
ft	foot	M/s	meter per second	λ	wavelength
ft/s	foot per second	N	Newton	wk	week
g	acceleration	N·m	newton meter	wt	weight
g	gram	Nm	Nanometer	yr	year
gal	gallon	No.	Number		
H	henry	o.d.	outside diameter		

area=unit^2 (e.g., ft^2, in^2, etc.); volume=unit^3 (e.g., ft^3, m^3, etc.)

ACRONYMS SPECIFIC TO THIS DOCUMENT

BW	Biological Warfare	MDS	Modular Decontaminating System
CARC	Chemical Agent Resistant Coatings	NFPA	National Fire Protection Association
CB	Chemical and Biological	NIJ	National Institute of Justice
CW	Chemical Warfare	OWR	Odenwald-Werke Rittersbach
DAP	Decontaminating Apparatus	PPE	Personal Protection Equipment
DEDAS	Decontamination Emulsion Direct Application	PSI	Pounds per Square Inch
DETA	Diethylenetriamine	RFAS	Russian Federation and Associated States
DPG	Dugway Proving Grounds	RSDL	Reactive Skin Decontaminant Lotion
DS2	Decontaminating Solution 2	SCFM	Standard Cubic Feet per Minute
EGME	Ethylene Glycol Monomethylether	SDK	Skin Decontamination Kit
EOD	Explosive Ordnance Disposal	SS-GLCS	Supersonic Gas/Liquid Cleaning System
HVS	High Volume Sprayer	STB	Super Tropical Bleach
IDLH	Immediately Dangerous to Life and Health	TICs	Toxic Industrial Chemicals
IAB	Interagency Board	TIMs	Toxic Industrial Materials
LDS	Liquid Decontaminant Soap	TSWG	Technical Support Working Group
NFPA	National Fire Protection Association	WPU	Water Purification Unit

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})

COMMON CONVERSIONS

0.30480 m = 1 ft	4.448222 N = 1 lbf
2.54 cm = 1 in	1.355818 J = 1 ft·lbf
0.4535924 kg = 1 lb	0.1129848 N m = 1 lbf·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·hr	1.609344 km/h = 1 mph

psi = mm of Hg x (1.9339×10^{-2})

mm of Hg = psi x 51.71

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

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

ABOUT THIS REPORT

The National Institute of Justice (NIJ) 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 chemical and biological 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), working with NIJ, the Technical Support Working Group (TSWG), the U.S. Army Soldier and Biological Chemical Command (SBCCOM), and the Interagency Board, is developing chemical and biological defense equipment guides. The guides will focus on chemical and biological equipment in areas of detection, personal protection, decontamination, and communication. This document focuses specifically on chemical and biological agent decontamination equipment and was developed to assist the emergency first responder community in the evaluation and purchase of decontamination equipment.

The long range plans are to: (1) subject existing decontamination equipment to laboratory testing and evaluation against a specified protocol, and (2) conduct research leading to the development of multiple 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, NIJ has developed this initial guide for the emergency first responder community, in order to facilitate their evaluation and purchase of decontamination equipment.

In conjunction with this program, additional guides, as well as other documents, are being issued in the areas of chemical agent and toxic industrial material detection equipment, biological agent detection equipment, personal protective equipment, medical kits and equipment, and communications equipment used in conjunction with protective clothing and respiratory equipment.

This specific work is Volume II of the Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders. It contains the information data sheets that were used to support the decontamination equipment evaluation detailed in Volume I. The compilation of data in Volume II is the result of the merger of several data acquisition methods used independently by NIST and TSWG.

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. *Reference herein to any specific commercial products, processes, or services by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The information*

and statements contained in this guide shall not be used for the purposes of advertising, nor to imply the endorsement or recommendation of the United States Government.

With respect to information provided in this guide, neither the United States Government nor any of its employees make any warranty, express or implied, including but not limited to the warranties of merchantability and fitness for a particular purpose. Further, neither the United States Government nor any of its employees assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed.

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 included in this guide can be found in this volume (Vol. II).

1. INTRODUCTION

This guide includes information intended to be useful to the emergency first responder community in the selection of chemical and biological agent and toxic industrial material decontamination techniques and equipment for different applications. This specific work, Volume II of the *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders*, includes details on the 72 decontamination equipment items that are referenced in Volume I.

The *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders* includes information intended to assist the emergency responder community select decontamination equipment. Due to the large number of decontamination equipment items identified for the guide, the guide is separated into two volumes. Volume I serves as the selection tool, while Volume II serves as a repository for the decontamination equipment data sheets.

This specific work represents Volume II of the *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders.* Volume II includes three sections and five appendices. Section 1 is the introduction. Section 2 discusses the market survey that was conducted to identify the 72 commercially available decontamination equipment items. Section 3 provides a description of the 36 data fields that were identified for providing information relating to the equipment. Appendix A lists the sources that were used in developing this document. Appendix B sequentially indexes the equipment by decontamination equipment identification number and includes the manufacturers. Appendix C alphabetically indexes the equipment by decontamination equipment name. Appendix D alphabetically indexes the decontamination equipment by the manufacturer names. Appendix E contains the data sheets for each item of decontamination equipment.

2. MARKET SURVEY

An extensive market survey was conducted to identify commercially available decontamination equipment including the assessment of past market surveys, identification of new equipment, and interaction with numerous equipment vendors. Section 2.1 provides a summary of the assessment of previous market surveys. Section 2.2 provides the identification of new and updated equipment, and section 2.3 provides a summary of information obtained through interfacing with the vendors.

2.1 Past Market Survey

A previously conducted market survey (*Wide Area Decon: CB Decontamination Technologies, Equipment and Projects)* was reviewed during the development of this guide and is listed in appendix A.

The review of this document resulted in the inclusion of approximately 55 decontamination equipment items within this guide.

2.2 Identification of New Equipment

A variety of techniques were utilized to identify new decontamination equipment, including a Commerce Business Daily (CBD) Announcement, literature searches, database searches, Internet searches, technical conferences, and technical contacts. These techniques resulted in the identification of 17 additional decontamination equipment items.

2.3 Vendor Contact

Vendors were contacted at two separate times in order to obtain additional information, as well as to finalize their specific equipment data for inclusion in the guide. The first contact occurred in the last quarter of 1999. Each of the vendors received a facsimile or an electronic mail message containing the data sheets for their specific equipment item(s). They were asked to identify missing data and certify the accuracy of the existing data.

The second contact was made during the first week of May 2000. Each vendor received a facsimile or an electronic mail message that contained the data sheets for their specific equipment item(s), the selection factors that were developed to assist with the selection and purchase of the most appropriate equipment, and the results of the evaluation of the decontamination equipment against the selection factors. The vendors were asked to review the data sheets and tables for completeness and accuracy of the incorporated data.

3. DATA FIELDS

Appendix D lists 72 commercially available chemical and biological (CB) agent decontamination equipment items. Thirty-six data fields, as defined in this section, were used for providing information relating to the decontamination equipment. It is important to note that these data fields were developed using input from the emergency responder community.

The data fields are organized into five categories:

- General.
- Operational parameters.
- Physical parameters.
- Logistical.
- Special requirements.

The remainder of this section defines each of the 36 data fields by category.

3.1 General Category

The General Category includes the following nine data fields:

- Equipment name.
- ID #.
- Decontamination process.
- Applications.
- Application notes.
- Availability.
- Current user.
- Manufacturer.
- Source.

Each of these data fields is defined in more detail in the remainder of this section.

3.1.1 Equipment Name

The Equipment Name data field is used to identify the name of the piece of equipment.

3.1.2 ID

The ID # data field is for identification purposes only.

3.1.3 Decontamination Process

The Decontamination Process identifies the process utilized by the decontamination equipment (i.e., thermal, chemical, or physical). The field also indicates if the process provides contaminant removal or detoxification.

3.1.4 Applications

The Applications data field identifies whether the equipment should be used for personnel, equipment, or infrastructure decontamination.

3.1.5 Application Notes

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

3.1.6 Availability

Availability refers to how readily available the equipment is (e.g., how long it takes to receive equipment upon purchasing).

3.1.7 Current User

The Current User data field is used to identify organizations that are currently using the piece of equipment.

3.1.8 Manufacturer

The Manufacturer data field contains the name of the company that developed the piece of equipment and includes the address, telephone number, and point of contact (POC).

3.1.9 Source

The Source data field indicates where the equipment information was obtained. Potential sources include past market surveys and Internet web sites.

3.2 Operational Parameters Category

The Operational Parameters Category includes the following six data fields:

- Chemical warfare agents decontaminated/neutralized.
- Biological warfare agents decontaminated/neutralized.
- Toxic industrial material decontaminated/neutralized.
- Decontaminant.
- Capacity/throughput.
- Set-up time.

Each of these data fields is defined in more detail in the remainder of this section.

3.2.1 Chemical Warfare (CW) Agents Decontaminated/Neutralized

The Chemical Warfare (CW) Agents Decontaminated/Neutralized data field describes the ability of the equipment to decontaminate or neutralize chemical warfare (CW) agents. The most common types of classic CW agents are the nerve and blister agents. Nerve agents include GA (Tabun), GB (Sarin), GD (Soman), GF, and VX. Blister agents include H and HD (Sulfur Mustards), HN (Nitrogen Mustard), and L (Lewisite).

3.2.2 Biological Warfare (BW) Agents Decontaminated/Neutralized

The Biological Warfare (BW) Agents Decontaminated/Neutralized data field describes the ability of the equipment to decontaminate or neutralize BW agents. Examples of classical BW agent types include bacteria (Anthrax), viruses (Q Fever), rickettsia (Typhus), and toxins (Botulinum Toxin).

3.2.3 Toxic Industrial Materials (TIMs) Decontaminated/Neutralized

The Toxic Industrial Materials (TIMs) Decontaminated/Neutralized data field describes the ability of the equipment to decontaminate or neutralize non-CW/BW agents. TIMs are used in a variety of settings such as manufacturing facilities, maintenance areas, and storage areas. TIMs are further characterized by using a high, medium, or low hazard index. Examples of TIMs are ammonia, carbon monoxide, hydrogen cyanide, phosgene, and mineral acids (i.e., hydrochloric acid, sulfuric acid, nitric acid, etc.).

3.2.4 Decontaminant

The Decontaminant data field includes the recommended decontaminant (e.g., water, sodium hydroxide, and DS2) used by the piece of equipment.

3.2.5 Capacity/Throughput

Capacity/Throughput of a piece of equipment indicates the number of personnel, vehicles, equipment, and shelters that can be decontaminated per hour.

3.2.6 Set-up Time

Set-up Time is the time required to conduct decontamination operations. This includes time for setup, processing, and tear down.

3.3 Physical Parameters Category

Physical Parameters Category include the following three data fields:

- Size.
- Weight.
- Power requirements.

Each of these data fields is defined in more detail in the remainder of this section.

3.3.1 Size

The Size data field indicates the external dimensions of the equipment.

3.3.2 Weight

The Weight data field indicates the total weight of the equipment in operational status.

3.3.3 Power Requirements

The Power Requirements data field includes the type of power (ac, dc, etc.) required to operate the equipment.

3.4 Logistical Parameters Category

The Logistical Parameters Category includes the following 11 data fields:

- Consumables required.
- Maintenance required.
- Shelf life.
- Transportability.
- Durability.
- Environmental conditions.
- Environmental considerations.
- Resources.
- Unit cost.
- Maintenance cost.
- Warranty.

Each of these data fields is defined in more detail in the remainder of this section.

3.4.1 Consumables Required

The Consumables Required data field includes supplies that the equipment uses during operation and storage. Examples of consumables are batteries, filters, sensors, compressed gases, etc.

3.4.2 Maintenance Required

The Maintenance Required data field includes the services and parts that are necessary to keep the equipment at its peak operational readiness. This includes any parts needed during preventative maintenance.

3.4.3 Shelf Life

Shelf Life refers to the length of time a piece of equipment or decontaminant can be stored before it needs to be replaced or replenished.

3.4.4 Transportability

The Transportability data field refers to the ability of the equipment to be transported including any support equipment required to operate it.

3.4.5 Durability

Durability describes how rugged the equipment is, i.e., how well can the equipment withstand rough handling and still operate.

3.4.6 Environmental Conditions

The Environmental Conditions data field indicates the type of environment required for the 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.

3.4.7 Environmental Considerations

Environmental Considerations refers to the type of environmental issues that arise when using a piece of decontamination equipment (e.g., waste disposal).

3.4.8 Resources

The Resources data field refers to the types of resources required to operate a piece of decontamination equipment (e.g., manpower).

3.4.9 Unit Cost

The Unit Cost data field is the cost of the equipment, including the cost of all consumables and support equipment.

3.4.10 Maintenance Cost

The Maintenance Cost data field is the cost needed to maintain and operate the equipment, which is normally based on equipment usage rates.

3.4.11 Warranty

Warranty refers to the length of time a piece of equipment would be guaranteed by the manufacturer.

3.5 Special Requirements Category

The Special Requirements Category includes the following seven data fields:

- Operator skills required.
- Operator training required.
- Training available.
- Manuals available.
- Support equipment.
- Testing information.
- Applicable regulations.

Each of these data fields is defined in more detail in the remainder of this section.

3.5.1 Operator Skills Required

The Operator Skills Required data field refers to the level of education and training required for the individual to operate the equipment.

3.5.2 Operator Training Required

The Operator Training Required data field refers to the amount of instruction time the operator needs to become proficient in operating the equipment.

3.5.3 Training Available

The Training Available data field refers to training provided by the manufacturer.

3.5.4 Manuals Available

The Manuals Available data field indicates the types of manuals available from the manufacturer (e.g., user manuals, training documentation, etc.).

3.5.5 Support Equipment

The Support Equipment data field includes any additional equipment required to operate the primary unit.

3.5.6 Testing Information

The Testing Information data field includes data obtained from the manufacturer and other sources regarding the equipment (e.g., validation testing).

3.5.7 Applicable Regulations

The Applicable Regulations data field includes any Government and/or safety regulations that may apply to the possession, use, storage, or disposal of a piece of equipment.

APPENDIX A—REFERENCES

APPENDIX A—REFERENCES

1. John A. Barrett, William M. Jackson, Imran A. Baig, Amy L. Coverstone, Craig E. Harfield, Richard D. Arcilesi, James Butler, William Burton, and Charles W. Williams, Jr, *Wide Area Decontamination: CB Decontamination Technologies, Equipment and Projects, Final Report*, Chemical Warfare/Chemical Biological Defense Information Analysis Center, Edgewood, MD, March 1999.

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4. A.K. Stuempfle, D.J. Howells, S.J. Armour, and C.A. Boulet, *International Task Force 25: Hazard from Industrial Chemicals Final Report*, Edgewood Research Development and Engineering Center, Aberdeen Proving Ground, MD, AD–B236562, ERDEC–SP–061, April 1998.

5. *Responding to A Biological or Chemical Threat: A Practical Guide*, U.S. Department of State, Bureau of Diplomatic Security, Washington, DC, 1996.

6. *2000 Emergency Response Guidebook, A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident*, U.S. Department of Transportation, Research and Special Programs Administration, Tempest Publishing, Alexandria, VA, January 2000.

APPENDIX B—INDEX BY DECONTAMINATION EQUIPMENT IDENTIFICATION NUMBER

Index by Decontamination Equipment Identification Number

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43	Karcher Decojet Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	89
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51	Karcher Hot Air Generator FB 20	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	106
52	Karcher AEDA1 Decontamination Equipment	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	108
53	Karcher M600 Decontaminant Mixer	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	110
54	Atmospheric Pressure Plasma Jet	Los Alamos National Laboratory, NM	112

ID #	*Decontamination Equipment Name*	*Manufacturer*	*Page E-#*
55	Decon Hoop	MITI Manufacturing, Inc., CO	114
56	SNL Decon Formulation	Modec, Inc., CO	116
57	Reactive Skin Decontaminant Lotion (RSDL)	O'Dell Engineering Ltd., Canada	118
58	Plychem DECAS W Casualty Decontamination Unit	Plysu PLC, United Kingdom	120
59	PLYCHEM DPI Decontamination Unit	Plysu PLC, United Kingdom	122
60	Modular Mass Casualty Decontamination System	Reeves Manufacturing, Inc., MD	124
61	Decontamination Kit, Personal No. 1, Mark 1	Remploy Ltd., United Kingdom	126
62	Decontamination Kit, Personal No. 2, Mark 1	Richmond Packaging (UK) Ltd., United Kingdom	128
63	Hazmat Decon Shower	RMC Medical, Inc., PA	130
64	Hazmat Decon Backboard	RMC Medical, Inc., PA	132
65	Decontamination Apparatus, Portable, DS2, ABC-M11	Slate Enterprises, Inc., CA	134
66	M13 Portable Decontaminating Apparatus (DAP)	Slate Enterprises, Inc., CA	136
67	NBC6F Water Purification Unit (WPU)	Stella-Meta, United Kingdom	138
68	Decontamination Kit, No. 2	Tradeways Ltd., MD	140
69	Decontamination Kit, Individual Equipment: M295	Truetech, NY	142
70	TVI Quick-E WMD Decon Shower Shelter	TVI Corporation, MD	144
71	TVI Quik-Kleen Mass Decontamination System	TVI Corporation, MD	146
72	Zenon Advanced Double Pass Reverse Osmosis Water Purification Unit	Zenon Environmental Systems Inc., Canada	148

APPENDIX C—INDEX BY DECONTAMINATION EQUIPMENT NAME

Index by Decontamination Equipment Name

Decontamination Equipment Name	*Manufacturer*	*ID #*	*Page E-#*
Karcher AEDA1 Decontamination Equipment	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	52	108
Karcher C8-DADS Direct Application Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	46	96
Karcher DECOCONTAIN 1500 Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	44	91
Karcher DECOCONTAIN 3000 Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	40	82
Karcher Decojet Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	43	89
Karcher Decojet-Trailer Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	33	68
Karcher Decont Jet 21	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	39	80
Karcher Decont Tent	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	47	98
Karcher Decontamination Trailer	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	41	85
Karcher DT60 Decontamination Tent	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	36	74
Karcher HDS 1200 EK High-Pressure Steam Jet Cleaner Unit	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	38	78
Karcher Hot Air Generator FB 60 E	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	49	102
Karcher Hot Air Generator FB 20	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	51	106

Decontamination Equipment Name	*Manufacturer*	*ID #*	*Page E-#*
Karcher M600 Decontaminant Mixer	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	53	110
Karcher Mobile Field Laundry CFL 60	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	45	94
Karcher MPDS MultiPurpose Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	50	104
Karcher Portable Lightweight Decontamination System DS 10	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	48	100
Karcher SCS 1200 DE Lightweight Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	37	76
Karcher SCS 1800 DE Decontamination System	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	42	87
M13 Portable Decontaminating Apparatus (DAP)	Slate Enterprises, Inc., CA	66	136
M17 Lightweight Decontamination System, Sanator	Engineered Air Systems, Inc., MO	16	31
Mediclean	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	34	70
Mobile Decon Pad	HazDecon, OH	21	42
Mobile Environmental Protection Container	Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	35	72
Mobile Laboratories	HazDecon, OH	22	44
Modular Mass Casualty Decontamination System	Reeves Manufacturing, Inc., MD	60	124
NBC- DEWDECON-3L Decontamination Device	DEW Engineering and Development Ltd., Canada	14	27
NBC6F Water Purification Unit (WPU)	Stella-Meta, United Kingdom	67	138
NBC-DEWDECON-20L Decontamination Device	DEW Engineering and Development Ltd., Canada	15	29

Decontamination Equipment Name	*Manufacturer*	*ID #*	*Page E-#*
NBC-DEWDECON-2L	DEW Engineering and Development Ltd., Canada	13	25
NBC-DEWDECON-M Decontaminant Mixer/ Applicator	DEW Engineering and Development Ltd., Canada	12	23
NBC-DEWDECON-PERS Emergency Response Personnel Decontamination Kit	DEW Engineering and Development Ltd., Canada	11	21
Personal Decontamination Kit	GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	18	36
Plychem DECAS W Casualty Decontamination Unit	Plysu PLC, United Kingdom	58	120
PLYCHEM DPI Decontamination Unit	Plysu PLC, United Kingdom	59	122
Portaflex CUPOLA Decontamination Shelter	Hughes Safety Showers USA, VA	23	46
Portaflex Decontamination Shower Series	Hughes Safety Showers USA, VA	24	48
Reactive Skin Decontaminant Lotion (RSDL)	O'Dell Engineering Ltd., Canada	57	118
Response and Decontamination Unit	Hughes Safety Showers USA, VA	25	51
SDMS Sensitive Material Decontamination System	GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	19	38
Skin Decontaminant Lotion	Anachemia Canada Inc., Canada	1	1
SNL Decon Formulation	Modec, Inc., CO	56	116
Snow Motion	Applied Surface Technologies, NJ	4	7
The Optimum Console	Crest Ultrasonics, NJ	7	13
Thorough Decontamination System	GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	20	40
TVI Quick-E WMD Decon Shower Shelter	TVI Corporation, MD	70	144
TVI Quik-Kleen Mass Decontamination System	TVI Corporation, MD	71	146
Zenon Advanced Double Pass Reverse Osmosis Water Purification Unit	Zenon Environmental Systems Inc., Canada	72	148

APPENDIX D—INDEX BY DECONTAMINATION EQUIPMENT MANUFACTURER

Index by Decontamination Equipment Manufacturer

Manufacturer	*Equipment Name*	*ID #*	*Page E-#*
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher DECOCONTAIN 1500 Decontamination System	44	91
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher Mobile Field Laundry CFL 60	45	94
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher C8-DADS Direct Application Decontamination System	46	96
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher Decont Tent	47	98
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher Portable Lightweight Decontamination System DS 10	48	100
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher Hot Air Generator FB 60 E	49	102
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher MPDS MultiPurpose Decontamination System	50	104
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher Hot Air Generator FB 20	51	106
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher AEDA1 Decontamination Equipment	52	108
Alfred Karcher Gmbh & Company, Germany U.S. Agent: Life Safety Systems	Karcher M600 Decontaminant Mixer	53	110
Anachemia Canada Inc., Canada	Skin Decontaminant Lotion	1	1
Applied Surface Technologies, NJ	K1-05 Standard Unit	2	3
Applied Surface Technologies, NJ	K4-05 High Purity	3	5
Applied Surface Technologies, NJ	Snow Motion	4	7
Container Products Corporation, NC	Decontamination Glove Booths	5	9
Crest Ultrasonics, NJ	HAL Series	6	11
Crest Ultrasonics, NJ	The Optimum Console	7	13
Cryogenesis, OH	Ice Gun	8	15
Cryogenesis, OH	Cryogenesis Booth	9	17

Manufacturer	*Equipment Name*	*ID #*	*Page E-#*
Cryokinetics, KS	Delta V-1 Dry Ice Surface Cleaning System	10	19
DEW Engineering and Development Ltd., Canada	NBC-DEWDECON-PERS Emergency Response Personnel Decontamination Kit	11	21
DEW Engineering and Development Ltd., Canada	NBC-DEWDECON-M Decontaminant Mixer/ Applicator	12	23
DEW Engineering and Development Ltd., Canada	NBC-DEWDECON-2L	13	25
DEW Engineering and Development Ltd., Canada	NBC- DEWDECON-3L Decontamination Device	14	27
DEW Engineering and Development Ltd., Canada	NBC-DEWDECON-20L Decontamination Device	15	29
Engineered Air Systems, Inc., MO	M17 Lightweight Decontamination System, Sanator	16	31
GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	DECON Powder Glove	17	34
GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	Personal Decontamination Kit	18	36
GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	SDMS Sensitive Material Decontamination System	19	38
GIAT Industries, France U.S. Agent: CENTECH GROUP, Inc.	Thorough Decontamination System	20	40
HazDecon, OH	Mobile Decon Pad	21	42
HazDecon, OH	Mobile Laboratories	22	44
Hughes Safety Showers USA, VA	Portaflex CUPOLA Decontamination Shelter	23	46
Hughes Safety Showers USA, VA	Portaflex Decontamination Shower Series	24	48
Hughes Safety Showers USA, VA	Response and Decontamination Unit	25	51
Irvin Aerospace Canada Ltd.	Blast Guard	26	53
Irvin Aerospace Canada Ltd.	First Responder's Blast Guard	27	56
Irvin Aerospace Canada Ltd.	First Responder's Surface Decon Unit	28	58
Irvin Aerospace Canada Ltd.	CASCAD	29	60
Irvin Aerospace Canada Ltd.	COLPRO	30	62
Los Alamos National Laboratory, NM	Atmospheric Pressure Plasma Jet	54	112

Manufacturer	*Equipment Name*	*ID #*	*Page E-#*
MITI Manufacturing, Inc., CO	Decon Hoop	55	114
Modec, Inc., CO	SNL Decon Formulation	56	116
O'Dell Engineering Ltd., Canada	Reactive Skin Decontaminant Lotion (RSDL)	57	118
Plysu PLC, United Kingdom	Plychem DECAS W Casualty Decontamination Unit	58	120
Plysu PLC, United Kingdom	PLYCHEM DPI Decontamination Unit	59	122
Reeves Manufacturing, Inc., MD	Modular Mass Casualty Decontamination System	60	124
Remploy Ltd., United Kingdom	Decontamination Kit, Personal No. 1, Mark 1	61	126
Richmond Packaging (UK) Ltd., United Kingdom	Decontamination Kit, Personal No. 2, Mark 1	62	128
RMC Medical, Inc., PA	Hazmat Decon Shower	63	130
RMC Medical, Inc., PA	Hazmat Decon Backboard	64	132
Slate Enterprises, Inc., CA	Decontamination Apparatus, Portable, DS2, ABC-M11	65	134
Slate Enterprises, Inc., CA	M13 Portable Decontaminating Apparatus (DAP)	66	136
Stella-Meta, United Kingdom	NBC6F Water Purification Unit (WPU)	67	138
Tradeways Ltd., MD	Decontamination Kit, No. 2	68	140
Truetech, NY	Decontamination Kit, Individual Equipment: M295	69	142
TVI Corporation, MD	TVI Quick-E WMD Decon Shower Shelter	70	144
TVI Corporation, MD	TVI Quik-Kleen Mass Decontamination System	71	146
Zenon Environmental Systems Inc., Canada	Zenon Advanced Double Pass Reverse Osmosis Water Purification Unit	72	148

APPENDIX E—DECONTAMINATION EQUIPMENT DATA SHEETS

DECONTAMINATION EQUIPMENT

General

Equipment Name

Skin Decontaminant Lotion

ID# 1

Decontamination Process

Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The Skin Decontaminant Lotion is used to decontaminate, on contact, skin and personal equipment. The lotion, manufactured in Canada by Anachemia, is currently in production. It employs chemical (oxidation) technology and is effective against chemical agents, such as mustard (H), nerve agents, and Lewisite (L). The lotion is supplied in a sealed barrier material pouch, under a layer of inert gas. Each pouch contains a towelette impregnated with 45 mL of lotion. The pouches are supplied in sets of four and can be opened while wearing gloves. Towelettes are wiped over the contaminated area and then wiped off using another towelette. The lotion should only be used on the skin and should not come in contact with the eyes.

Availability

Commercially available

Current User

Not specified

Manufacturer

Anachemia Canada Inc.
P.O. Box 147
Lachine (Quebec), Canada H8S 4A7
514–489–5711 (Tel)
514–363–5281 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

G agents, VX, HD, L

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	6 L 6 W x 1.92 H (in)
Weight	Not specified
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant packets
Maintenance Repairs Required	None
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	14 °F to 122 °F (operating temperature)
Environmental Considerations	Not specified
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *K1-05 Standard Unit*

ID# 2

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The K1-05, manufactured commercially in the U.S. by Applied Surface Technologies, is designed to clean sensitive equipment. The K1-05 employs mechanical technology (high-pressure carbon dioxide), which uses carbon dioxide to remove micron and sub-micron particles from surfaces at high efficiencies and also removes hydrocarbon-based contamination. The CO2 snow cleaning is nondestructive and nonabrasive. The K1-05 unit addresses both the general and critical cleaning problems. The unit comes with either a 5 ft or 10 ft flexible stainless steel PTFE lined hose, a CGA320 cylindrical fitting, an on/off gun, an optional 0.5 µ stainless steel filter, a 0 psi to 2000 psi pressure gauge, and two nozzles. One nozzle is an FEP polymer, the other nozzle is stainless steel, and both have 16 mm diameter orifices. A brass nozzle can also be substituted for the stainless steel nozzle. A 24 V dc or a 120 V ac solenoid control valve can be supplied in place of the on/off gun. The standard units can also be equipped with the narrow 1/16 in outer diameter by using either a 0.010, 0.020, or 0.030 thousandth of an inch inner diameter tube.

Availability Commercially available

Current User Not specified

Manufacturer

Applied Surface Technologies
15 Hawthorne Drive
New Providence, NJ 07974
908–464–6675 (Tel)
908–464–7475 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

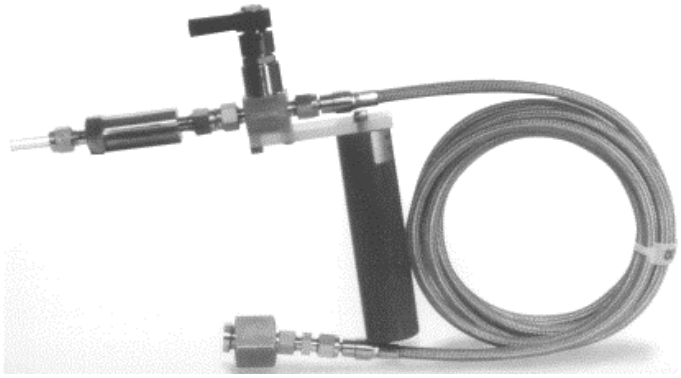
-High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Carbon dioxide
Capacity/Throughput	Not specified
Set-up Time	Not specified
Physical Parameters	Not specified
Size	Not specified
Weight	Not specified
Power Requirements	24 V dc or 120 V ac
Logistical Parameters	Not specified
Consumables Required	Decontaminant, filter
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	The decontamination process leaves no residue on the surface of the item nor does it produce any chemical waste.
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified
Special Requirements	Not specified
Operator Skills Requirements	Not specified
Operator Training Requirements	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

K4-05 High Purity

ID# 3



Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The K4-05 high purity unit is also designed to clean sensitive equipment. This system employs mechanical technology (high-pressure carbon dioxide), which uses carbon dioxide to remove micron and sub-micron particles from surfaces at high efficiencies and also removes hydrocarbon-based contamination. The carbon dioxide snow cleaning is nondestructive and nonabrasive. The process leaves no residue on the surface of the item nor does it produce any chemical waste. The K4-05 unit addresses both the general and critical cleaning problems. These units come with either a 5 ft or 10 ft flexible stainless steel PTFE lined hose, a CGA320 cylindrical fitting, two nozzles, and a 0.01 µ filter. All fittings for this unit are compression fittings as opposed to NPT fittings. An electro-polished 24 V dc or 120 V ac solenoid valve (with compression fittings) can be substituted for the 90° on/off valve.

Availability

Commercially available

Current User

Not specified

Manufacturer

Applied Surface Technologies
15 Hawthorne Drive
New Providence, NJ 07974
908–464–6675 (Tel)
908–464–7475 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Cleaning solution
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	The decontamination process leaves no residue on the surface of the item nor does it produce any chemical waste.
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Snow Motion***

ID# 4

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The Snow Motion is a fully automated carbon dioxide snow cleaning workstation used to clean sensitive and interior equipment. It is commercially available in the U.S. Snow Motion is used to clean laser filters, visible lenses, mirrors, wire bond pads, ceramics, metals, and wafers. Contamination is lifted off the surface and partially absorbed into the carbon dioxide stream. The Snow Motion, if used for decontamination, would only remove the contamination. An additional procedure would be necessary to neutralize the agent. The station features four axis motion (x, y, z rotary) with a user friendly programming interface. Cleaning procedures can be saved as programs, which can be saved, recalled, and later edited with a keyboard and display interface located on front panel. The nozzle is made of stainless steel, which produces a near sonic stream of carbon dioxide with a coaxial flow of nitrogen to reduce moisture. Moisture will inhibit the cleaning process. The system is also equipped with inline gas filters, which are fitted just prior to the nozzles.

Availability Commercially available

Current User Not specified

Manufacturer

Applied Surface Technologies
15 Hawthorne Drive
New Providence, NJ 07974
908–464–6675 (Tel)
908–464–7475 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Cleaning solution
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	68 °F to 86 °F (operating temperature)
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Glove Booths***

ID# 5

Picture Not Available

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes Container Products Corporation manufactures a series of commercially available high-pressure decontamination booths. The decontamination units are designed for the decontamination of hand tools and other large heavy items. The booths employ mechanical technology, and they disperse high-pressure water sprays over contaminated equipment. The booths are made from stainless steel and are equipped with a chemical solution injection system.

Availability Commercially available

Current User Not specified

Manufacturer Container Products Corporation
P.O. Box 2767
Wilmington, NC 28406
910–392–6100 (Tel)
910–392–6778 (Fax)
email: cpc@c-p-c.com

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Constructed of stainless steel
Environmental Conditions	Water supply can be heated to a temperature range of 100 °F to 300 °F.
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

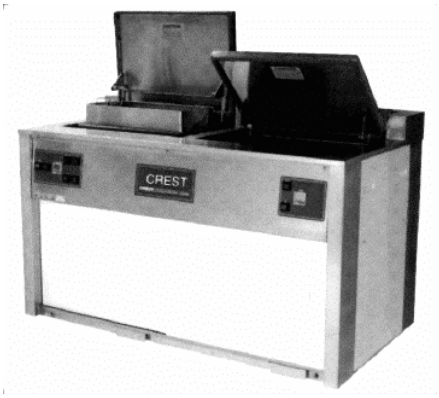
Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *HAL Series*

ID# 6



Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The HAL Series is used to clean hospital instruments completely before they are subjected to disinfection and sterilization. The HAL Series is available commercially in the U.S. and is manufactured by Crest Ultrasonics. The consoles are available in 11 gal, 15 gal, and 20 gal sizes. The systems are easily operated with a push of one button. The systems can be used in conjunction with cleaning solutions in order to obtain optimal cleaning efficiencies.

Availability Commercially available

Current User Not specified

Manufacturer

Crest Ultrasonics
Scotch Road
P.O. Box 7266
Trenton, NJ 08628
609–883–4000 (Tel)
609–883–6452 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated G, VX, D

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Fuller's Earth

Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	110 °F to 140 °F (operating temperature)
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

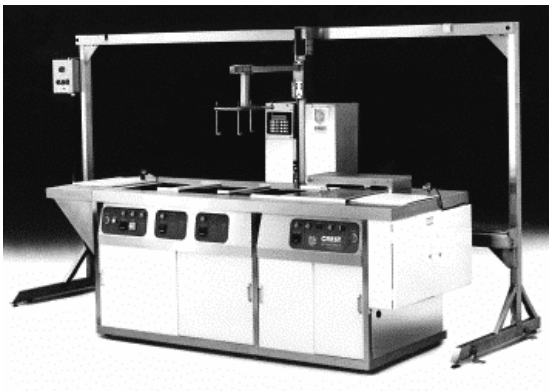
Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

ID# 7

The Optimum Console



Decontamination Process

Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The Optimum Console is a versatile precision cleaning system. It is commercially available in the U.S. and is manufactured by Crest Ultrasonics. The system employs mechanical technology (ultrasonic) and is available in aqueous or semi-aqueous process versions. The system is made from rugged, stainless steel and is available in 3, 4, or 5 stage wash station designs. Stand tank sizes range from 10 L x 14 W x 10 D to 24 L x 36 W x 20 D (in) deep. The three-station Optimum Console is a wash-rinse-dry system designed for most general cleaning applications. The four-station wash-rinse-rinse-dry system is ideal for precision cleaning applications at the microscopic level. The five-station wash-wash-rinse-rinse-dry is configured for semi-aqueous cleaning applications. The Ultrasonic Wash provides high intensity heated ultrasonic wash. Filtered recirculation with overflow aids in removing oil and particulate contaminants. The wash is followed by a Heated Ultrasonic Rinse, which provides a two-stage reverse flow cascade rinse with spray-over immersion, conserving space and water usage. The last stage, the High Efficiency Recirculating Hot Air Dryer, quickly dries parts using compressed air.

Availability

Commercially available

Current User

Not specified

Manufacturer

Crest Ultrasonics
Scotch Road
P.O. Box 7266
Trenton, NJ 08628
609–883–4000 (Tel)
609–883–6452 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Not specified
BW Agents Decontaminated	Not specified
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Ambergard XE-555 Resin
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Variety
Weight	Variety
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	The system is constructed from rugged stainless steel.
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

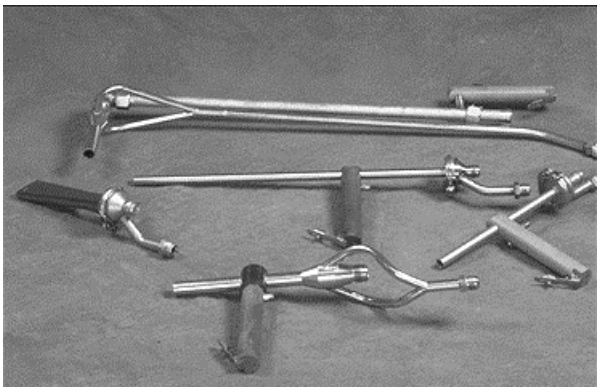
Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Ice Gun

ID# 8



Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The Ice Gun is designed to decontaminate sensitive and interior equipment. The Ice Gun is commercially available in the U.S. and is manufactured by Cryogenesis. The gun employs mechanical technology (high-pressure carbon dioxide) with controlled air speed allowing the dry ice to be accelerated to subsonic or supersonic speeds (in excess of 1300 ft/s). The gun's operating range is between 40 psi and 350 psi and is able to be elevated 50 ft to 60 ft. The ice pellets range from 100 µ to ¼ in diameter.

Availability

Commercially available

Current User

Not specified

Manufacturer

Cryogenesis
2140–T Scranton Rd.
Cleveland, OH 44113
216–696–8797 (Tel)
216–696–8794 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

None

BW Agents Decontaminated

None

High Hazard TIMs Decontaminated

None

Medium Hazard TIMs Decontaminated

None

Low Hazard TIMs Decontaminated

None

Decontaminant Solutions

None

Capacity/Throughput

Not specified

Set-up Time	Not specified

Physical Parameters

Size	18 W x 26 L x 46 H (in)
Weight	200 lb
Power Requirements	None - all pneumatic

Logistical Parameters

Consumables Required	Compressed air @ 80 psi and 170 SCFM 100 lb/h to 200 lb/h of dry ice
Maintenance Repairs Required	Very low maintenance
Shelf Life	Not specified
Transportability	Very portable
Durability	To last 10 yr
Environmental Conditions	Not specified
Environmental Considerations	Operates at 108 dB
Resources	Not specified
Unit Cost	$13.1K to $19K
Maintenance Cost	$500/yr
Warranty	1 yr

Special Requirements

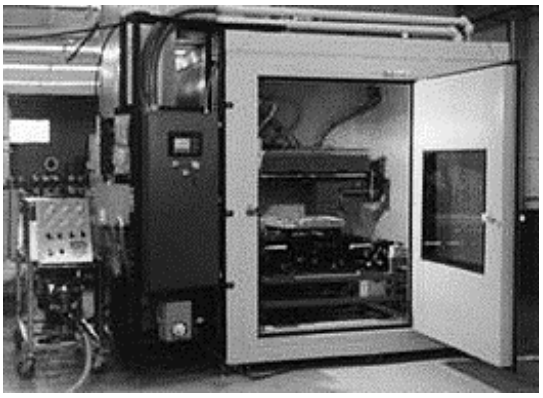
Operator Skills Required	High school
Operator Training Required	1 h to 2 h
Training Available	Yes
Manuals Available	Yes
Support Equipment	Compressor and dry ice
Testing Information	Yes, available from manufacturer
Applicable Regulations	Not specified

General

Equipment Name

ID# 9

Cryogenesis Booth



Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The Cryogenesis Booth is a fully automated cleaning system that is commercially available in the U.S. The system employs mechanical technology (high-pressure carbon dioxide) to clean equipment. The booth is equipped with an "x-y" translation and rotation table coupled with a stationary ice gun. Contaminated equipment is placed inside the booth on a table that rotates the equipment around as the ice gun disperses ice pellets to clean the equipment. Contaminated equipment is cleaned in one step. The cleaning system is housed in a soundproof booth.

Availability

Commercially available

Current User

Not specified

Manufacturer

Cryogenesis
2140–T Scranton Rd.
Cleveland, OH 44113
216–696–8797 (Tel)
216–696–8794 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

GB, VX, HD

BW Agents Decontaminated

All

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated

Not specified

Decontaminant Solutions	Dry Ice
Capacity/Throughput	100 lb/h to 200 lb/h dry ice
Set-up Time	30 min

Physical Parameters

Size	18 W x 26 L x 46 H (in)
Weight	200 lb
Power Requirements	None - all pneumatic

Logistical Parameters

Consumables Required	Compressed air @ 80 psi and 170 SCFM 100 lb/h to 200 lb/h of dry ice
Maintenance Repairs Required	Very low maintenance
Shelf Life	Not specified
Transportability	Very portable
Durability	To last 10 yr
Environmental Conditions	Not specified
Environmental Considerations	Operates at 108 dB
Resources	Not specified
Unit Cost	$13.1K to $19K
Maintenance Cost	$500/yr
Warranty	1 yr

Special Requirements

Operator Skills Required	High school
Operator Training Required	1 h to 2 h
Training Available	Yes
Manuals Available	Yes
Support Equipment	Compressor and dry ice
Testing Information	Yes, available from manufacturer
Applicable Regulations	Not specified

General

Equipment Name ***Delta V-1 Dry Ice Surface Cleaning System***

ID# 10

Decontamination Process Physical (removes contaminant) or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The Delta V-1 Dry Ice Surface Cleaning System employs mechanical technology and is designed as an environmentally safe alternative to the many surface cleaning methods currently available. The system is commercially available in the United States and is manufactured by Cryokinetics. The Delta V-1 is a portable, easy to operate system requiring no electrical power. This system employs small particles of dry ice in conjunction with high air pressure as the primary cleaning method. The dry ice particles convert from a solid to a gas upon impacting the surface being cleaned. This system is a nonwaste generating unit. Rice, plastic beads, glass beads, etc., can be used for more aggressive surface preparation requirements.

Availability Commercially available

Current User Not specified

Manufacturer Cryokinetics
P.O. Box 782183
Wichita, KS 67278
316–681–0080 (Tel)
316–681–0330 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water Sodium Hydroxide DS2
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	1.33 L x 12 W x 2 H (ft)
Weight	85 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***NBC-DEWDECON-PERS Emergency Response Personnel Decontamination Kit***

ID# 11

Decontamination Process Physical (removes contaminant) or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The NBC-DEWDECON-PERS Emergency Response Personnel Decontamination Kit is a portable system for the decontamination of skin and personal equipment. Depending on decontaminants used in the kit, either chemical or mechanical technologies may be employed. This system contains equipment and supplies for the immediate decontamination of personnel by civilian firefighters, police, and ambulance crews. The kit was designed to be carried in a vehicle cab or cargo area and can be ready for use within seconds. Items necessary for the decontamination of nerve and blister agents are included in this decontamination kit. Illustrated instructions are included with the kit and all components are clearly labeled for quick identification.

Availability Commercially available

Current User Not specified

Manufacturer DEW Engineering and Development Ltd.
3429 Hawthorne Road
Ottawa, Ontario Canada K1G 4G2
613–736–5100 (Tel)
613–736–1348 (Fax)
email: tdear@dew.ca

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated G agents, V agents, HD

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Within seconds

Physical Parameters

Size	1.37 W x 1.18 D x 1.83 H (ft)
Weight	50.6 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	None
Shelf Life	Not specified
Transportability	Portable decontamination unit
Durability	Designed to be used in harsh environments.
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***NBC-DEWDECON-M Decontaminant Mixer/Applicator***

ID# 12

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The NBC-DEWDECON-M Decontaminant Mixer/Applicator is a portable system used to generate calcium hypochlorite based emulsion for decontamination of exterior equipment. This system has been approved for service with the Canadian armed forces. The NBC-DEWDECON-M employs chemical technology (microemulsion) and was developed to provide a noncorrosive and stable means of effectively decontaminating ships, aircrafts, vehicles, and equipment. The C8-C emulsion produced by the mixer neutralizes chemical agents such as TGD, HD, and VX. The emulsion is effective for 24 h to 72 h, depending on ambient temperature. A toluene-based perchloroethylene solvent replacement is also available. The mixer can be set up in 10 min by two people and will produce a continuous online calcium hypochlorite based emulsion at a rate of up to 2200 L/h. The mixer can be used as a direct applicator or to fill the DEWDECON-20L device for remote decontamination. The mixer has a built-in rinse capability and a top-mounted accessory box for storing hoses, wands, spare parts, and tools. Both diesel and petrol powered units are available.

Availability Commercially available

Current User In service with the Canadian armed forces

Manufacturer

DEW Engineering and Development Ltd.
3429 Hawthorne Road
Ottawa, Ontario, Canada K1G 4G2
613–736–5100 (Tel)
613–736–1348 (Fax)
email: tdear@dew.ca

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	G agents, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	C8-C emulsion
Capacity/Throughput	Delivers 2200 L of decontaminant per hour
Set-up Time	10 min

Physical Parameters

Size	4.26 L x 3.18 W x 2.91 H (ft)
Weight	785.4 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Two people
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***NBC-DEWDECON-2L***

ID# 13

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The NBC-DEWDECON-2L decontamination device is a lightweight man-portable system designed to decontaminate exterior equipment. This system is manufactured in Canada by DEW Engineering and Development Ltd., and is currently in service in the Middle East. The NBC-DEWDECON-2L employs chemical technology and is used to disseminate DS2 decontaminating agent in a controlled spray to remove chemical warfare agents from contaminated surfaces. The DEWDECON-2L is a smaller version of the DEW 3 L unit and shares many interchangeable parts. The DEW 2 L device uses nitrogen cartridges as the primary method of pressurization, with an attached hand pump as backup. The device comes complete with a mounting bracket, spare parts, tools, and spare nitrogen cylinders. It is reusable and can be filled, pressurized, and operated while wearing full NBC protective clothing.

Availability Commercially available

Current User In service in the Middle East

Manufacturer

DEW Engineering and Development Ltd.
3429 Hawthorne Road
Ottawa, Ontario, Canada K1G 4G2
613–736–5100 (Tel)
613–736–1348 (Fax)
email: tdear@dew.ca

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	DS2
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	5.88 W x 6.24 D x 17.3 L (in)
Weight	8.8 lb (dry weight)
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, nitrogen cartridges
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***NBC-DEWDECON-3L Decontamination Device***

ID# 14

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The NBC-DEWDECON-3L Decontamination Device is a lightweight, man-portable system designed to decontaminate exterior equipment. This system is currently in service with Australian, Canadian, and Saudi Arabian armed forces. The NBC DEWDECON-3L employs chemical technology to disseminate DS2 decontaminant in a controlled spray for 1 m to 3 m. This system is used to remove chemical agents from the surface of military equipment and it can be filled, charged, and operated while wearing full NBC protective clothing. The device can be pressurized using an air compressor or by hand. The NBC-DEWDECON-3L is deployed on wheeled and track vehicles, aircraft ground support equipment, and exterior bulkheads of ships. This item is supplied with a mounting bracket, pressure gauge, safety relief valve, and operator instructions in English, French, and Arabic. The DEW-3L is corrosion resistant to DS2, reusable, and adaptable to other decontaminants. All required maintenance can be performed by the operator using spare parts and tools provided with each unit. The hand pump on the DEW-3L is interchangeable with the NBC-DEWDECON-20L Decontamination Device. When stowed in its mounting bracket, the DEW-3L measures 150 mm in width, 160 mm in depth, and 635 mm in height. The dry weight of the NBC-DEWDECON-3L is 5.4 kg.

Availability Commercially available

Current User In service in Australia, Canada, and Saudi Arabia.

Manufacturer

DEW Engineering and Development Limited
3429 Hawthorne Road
Ottawa, Ontario, Canada K1G 4G2
613–736–5100 (Tel)
613–736–1348 (Fax)
email: tdear@dew.ca

Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	DS2
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	5.88 W x 6.24 D x 25 H (in)
Weight	11.88 lb (dry weight)
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Yes
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Corrosion resistant to DS2, reusable, and adaptable to other decontaminants
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Air Compressor
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *NBC-DEWDECON-20L Decontamination Device*

ID# 15

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The NBC-DEWDECON-20L Decontamination Device is a man-portable decontamination system designed to decontaminate exterior equipment. The NBC-DEWDECON-20L employs chemical technology (microemulsion) to disseminate C8-C type decontaminant using a standard 5 gal (22.7 L) plastic jerrican. The DEW-20L can be filled, pressurized, and operated wearing full NBC protective clothing. The tank capacity is 18.5 L and pressurization occurs through an external air source or the use of the integral hand pump. The integral hand pump is interchangeable with the NBC-DEWDECON-3L Decontamination Device. Any required maintenance can be performed using the spare parts and tool kit provided. Additionally, an optional DS2 conversion is also available that will enable the NBC-DEWDECON-20L to disseminate DS2. An operator with a fully charged device can decontaminate an M113 armored personnel carrier within 8 min. The DEW-20L device is filled using the NBC-DEWDECON-M emulsion mixer and the C8-C decontaminant. The C8-C decontaminant is effective for at least 72 h. The NBC-DEWDECON-20L is supplied in a rugged fabric bag that fits into any available space on a vehicle.

Availability Commercially available

Current User In service in Australia, Canada, and Saudi Arabia

Manufacturer

DEW Engineering and Development Ltd.
3429 Hawthorne Road
Ottawa, Ontario, Canada K1G 4G2
613–736–5100 (Tel)
613–736–1348 (Fax)
email: tdear@dew.ca

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	G agents, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	C8-C emulsion
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	23.6 W x 7.92 D x 5.88 H (in)
Weight	22 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Yes
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Supplied in a rugged fabric bag
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Operations and maintenance manual
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *M17 Lightweight Decontamination System, Sanator*

ID# 16

Picture Not Available

Decontamination Process Physical (removes contaminant) or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The M17 Lightweight Decontamination System, Sanator is a lightweight, man-portable, and self-contained decontamination system designed to decontaminate personnel and exterior equipment. The system is under license from Karl H. Hoie & Company, Norway, and is in service with Australian, Finnish, Norwegian, Saudi Arabian, Spanish, Swedish, U.K., and U.S. armed services. The Sanator employs mechanical technology in order to decontaminate surfaces. Approximately 24 L of superheated water per minute can be dispersed at high-pressures from 1 to 2 spray wands. The system can also supply up to 80 L of water per minute to 12 showerheads for skin and personal decontamination. The system is equipped with two high-pressure spray wands, 12 shower points, a 10 m suction hose with filter, two 20 m high-pressure hoses, and a high-volume chemical decontaminant injector (to add decontaminants to the water stream). The system uses a 6000 L water tank and is powered by an 8.5 horsepower (hp) two-stroke, air-cooled engine, allowing the system the capability of suctioning water from any water source to a height of 3 m.

Availability Commercially available

Current User In service with the U.S. Army, Air Force, and Marine Cops

Manufacturer Engineered Air Systems, Inc.
1270 North Price Rd.
St. Louis, MO 63132
POC: Frank Tricomi
314–993–5885 ext. 284 (Tel)
314–567–4052 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water
Capacity/Throughput	Approximately 24 L of superheated water (302 °F) per minute can be dispersed at high-pressures from 1 to 2 spray wands. The system can also supply up to 80 L of water per minute to 12 showerheads for skin and personal decontamination.
Set-up Time	Not specified

Physical Parameters

Size	19 ft^3
Weight	375 lb
Power Requirements	8.5 hp two-stroke engine

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	The M17 can be operated by one person and in temperatures as low as -40 °F.
Environmental Considerations	Not specified
Resources	One operator
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	1 yr

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal training required to operate or maintain the unit. It is virtually automatic in its operation.
Training Available	An operator and maintainer training course has been developed and is available.
Manuals Available	There are extensive technical manuals and detailed maintenance manuals available complete with illustrated parts lists, spare part requirements, required tools and consumables.

Support Equipment	Water bladders (1600 gal, 3000 gal, 10000 gal, and 20000 gal) are available depending on the customer's operational requirement
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***DECON Powder Glove***

ID# 17

Picture Not Available

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes Information not available

Availability Commercially available

Current User French army, civil defense, Singapore

Manufacturer GIAT Industries
78034 Versailles Cedex, France
+33–1309–73991 (Tel)
+33–1309–73967 (Fax)

North American Distributor: The CENTECH GROUP, Inc.
4600 North Fairfax Drive, Suite 400
Arlington, VA 22203
800–938–1026 (Tel)
http://www.giat-industries.fr

Source GIAT Industries NBC Defense

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Fuller's Earth

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size 8.16 x 4.68 x 0.6 (in)

Weight	0.275 lb
Power Requirements	None

Logistical Parameters

Consumables Required	None
Maintenance Repairs Required	None
Shelf Life	10 yr
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	To be used for shelter of rain or wind
Environmental Considerations	Not specified
Resources	One man
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	1 yr

Special Requirements

Operator Skills Required	Hazmat technician or NBC trained personnel
Operator Training Required	Not specified
Training Available	Yes
Manuals Available	User manual
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Personal Decontamination Kit***

ID# 18

Picture Not Available

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes Information not available

Availability Commercially available

Current User French Civil Defense Fire Brigade

Manufacturer GIAT Industries
78034 Versailles Cedex, France
+33–1309–73991 (Tel)
+33–1309–73967 (Fax)

North American Distributor: The CENTECH GROUP, Inc.
4600 North Fairfax Drive, Suite 400
Arlington, VA 22203
800–938–1026 (Tel)
http://www.giat-industries.fr

Source GIAT Industries NBC Defense

Operational Parameters

CW Agents Decontaminated GA, GB, GD, VX, HD, L

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Potassium Permanganate conc.: 0.05 %
Sodium Hydrogen carbonate conc.: 1.5 %
Sodium Hypochlorite conc.: 0.04 %

Capacity/Throughput Decontaminates 5 people

Set-up Time Not specified

Physical Parameters

Size	2.6 L x 1.5 W x 1.3 H (ft)
Weight	47 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Maintenance on gasket every 5 yr
Shelf Life	9 yr for sprayer, 5 yr for decon solution
Transportability	Not specified
Durability	Rugged for emergency use
Environmental Conditions	Operates in common environmental conditions.
Environmental Considerations	Regulations not known about waste
Resources	One man per sprayer
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	1 yr

Special Requirements

Operator Skills Required	Hazmat technician or NBC trained personnel
Operator Training Required	1 h of training is required to operate equipment
Training Available	Yes
Manuals Available	User manual
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	None

General

Equipment Name ***SDMS Sensitive Material Decontamination System***

ID# 19

Picture Not Available

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes Personnel equipment, sensitive equipment, interior equipment

Availability Military

Current User French army, German army

Manufacturer

GIAT Industries
78034 Versailles Cedex, France
+33–1309–73991 (Tel)
+33–1309–73967 (Fax)

North American Distributor: The CENTECH GROUP, Inc.
4600 North Fairfax Drive, Suite 400
Arlington, VA 22203
800–938–1026 (Tel)
http://www.giat-industries.fr

Source GIAT Industries NBC Division

Operational Parameters

CW Agents Decontaminated GA, GD, VX, HD

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Noncorrosive solution (IGA 02 / IGA 07). other decon solutions may be used.

Capacity/Throughput 54 small guns, 54 helmets, 54 masks/h

Set-up Time Not specified

Physical Parameters

Size	Shelter is 20 ft
Weight	Less than or equal to 10 T
Power Requirements	Autonomy: 75 KWA-ac available 400 V:dc

Logistical Parameters

Consumables Required	Decon solution, Gas-oil, batteries, water
Maintenance Repairs Required	Prototype under evaluation
Shelf Life	20 yr
Transportability	Sea/air transportation
Durability	Mil Spec
Environmental Conditions	Functioning by day and night of -32 °C to +49 °C with restriction from -5 °C
Environmental Considerations	Effluents are recovered
Resources	3 man (1 specialist trained with this system)
Unit Cost	On request
Maintenance Cost	Prototype under evaluation
Warranty	1 yr

Special Requirements

Operator Skills Required	User manual and training manual
Operator Training Required	4 d
Training Available	On request
Manuals Available	User manual and maintenance manual
Support Equipment	Not specified
Testing Information	French Ministry of Defense BW-Allemagne
Applicable Regulations	Export license

General

Equipment Name ***Thorough Decontamination System***

ID# 20

Picture Not Available

Decontamination Process	Physical (removes contaminant) and/or Chemical (neutralizes contaminant)
Applications	**Personnel** No; **Equipment** Yes; **Infrastructure** No
Application Notes	Information not available
Availability	Commercially available
Current User	French army forces
Manufacturer	GIAT Industries 78034 Versailles Cedex, France +33–1309–73991 (Tel) +33–1309–73967 (Fax) North American Distributor: The CENTECH GROUP, Inc. 4600 North Fairfax Drive, Suite 400 Arlington, VA 22203 800–938–1026 (Tel) http://www.giat-industries.fr
Source	GIAT Industries NBC Defense

Operational Parameters

CW Agents Decontaminated	GA, GD, VX, HD
BW Agents Decontaminated	Not specified
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Decontaminates 10 vehicles per hour
Set-up Time	Not specified

Physical Parameters

Size	31 x 148 x 23 (ft)
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Anti freeze Water Gas-oil Batteries Decontaminant
Maintenance Repairs Required	Yes (monthly)
Shelf Life	20 yr
Transportability	Not specified
Durability	Not specified
Environmental Conditions	14 °F to 120 °F (operating temperature)
Environmental Considerations	No recuperation of effluents
Resources	3 men
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	1 yr

Special Requirements

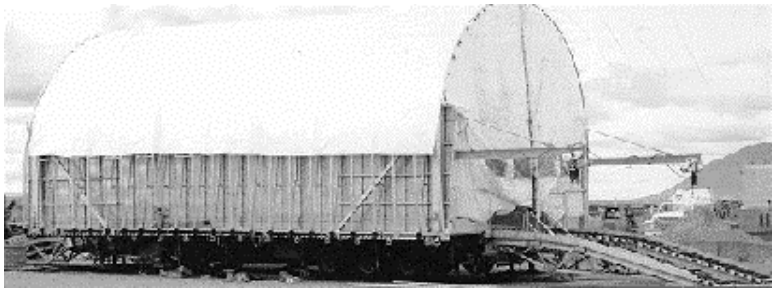
Operator Skills Required	Hazmat technician or NBC trained personnel
Operator Training Required	5 d of training is required to operate this equipment
Training Available	Yes
Manuals Available	User manual and maintenance manual
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Export license

General

Equipment Name

Mobile Decon Pad

ID# 21



Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes

The Mobile Decon Pad is designed to decontaminate exterior equipment as well as skin and personal equipment. The Decon Pad is commercially available in the U.S. The Mobile Decon Pad can incorporate an already used decontamination spray technology, or one can be designed along with the pad. Depending on the decontamination solutions utilized, the Mobile Decon Pad may employ one or more of the following technologies: chemical, mechanical, or high-pressure. The pad is portable and is capable of grossly decontaminating people as well as items ranging in size from small hand tools to large military vehicles. The system is fully operational in less than 2 h. The Mobile Decon Pad has been engineered with a stainless steel structure to resist contaminates and chemical agents. Key features of the system include the ability to maintain an exclusion zone and provide for secondary containment. In addition, the mobile system can be moved from site to site to accommodate new requirements and eliminates the need for fixed facilities.

Availability

Commercially available

Current User

Not specified

Manufacturer

HazDecon
810-TW. Alex Bell Rd.
Dayton, OH 43459
888–800–3266 (Tel)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Carbon dioxide
Capacity/Throughput	Not specified
Set-up Time	Less than 2 h

Physical Parameters

Size	45 L x 24 W (ft)
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	The Mobile Decon Pad has been engineered with a stainless steel structure to resist chemical agents.
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Mobile Laboratories***

ID# 22

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes Mobile Laboratories are custom made decontamination laboratories designed to provide decontamination instrumentation, clean rooms, HEPA filtration, deionized water as well as various other features. The laboratories are commercially available in the U.S. and are manufactured by HazDecon Rental & Sales Inc. Many hazardous waste contractors, laboratories, and several companies and organizations in the U.S currently use them. The self-contained systems range in size from 16 ft to 55 ft in length and 8 ft to 12 ft in width. Key features of the mobile laboratories include gas chromatograph and atomic absorption vent systems, refrigerators, slide-out gas cylinder racks (2 bottles), a gas/zero air generator hookup, a complete HVAC system, and a wet chemistry area to include sink and drying rack. In addition, these systems include an acid storage cabinet, a flammable storage cabinet, instrument tie-down tracks, a stainless steel gas manifold system, and a fume hood. Additionally, the mobile laboratory comes with 125 A 240 V electrical service. Finally, all systems are equipped with 204 in of curbside countertop space and 238 in of roadside countertop space. The laboratory has an epoxy floor system, cooler storage, and an optional hot plate, furnace or oven for decontamination crew conveniences.

Availability Commercially available

Current User Not specified

Manufacturer HazDecon
810-TW. Alex Bell Rd.
Dayton, OH 43459
888–800–3266 (Tel)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Carbon dioxide
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	55 L x 12 W (ft)
Weight	Not specified
Power Requirements	240 V @ 125 A

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Mobile Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Portaflex CUPOLA Decontamination Shelter***

ID# 23

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Portaflex CUPOLA is a decontamination shelter used with the Portaflex 300. The CUPOLA is designed to provide containment of contaminated water or decontamination solutions following a decontamination effort. The CUPOLA allows contaminated personnel to walk through from the dirty area to a clean area while undergoing decontamination using the Portaflex 300. The shelter frame incorporates four legs that are inflated under low pressure. An inner lining that has windows on two opposite sides, to enable the decontamination process to be observed, runs across the legs. The openings are fitted with drop down splash flaps to eliminate overspray.

Availability Commercially available

Current User Not specified

Manufacturer Hughes Safety Showers USA
115 N. Lee St. Suite 502
Alexandria, VA 22314
703–836–7486 (Tel)
703–836–8090 (Fax)
email: hoyas1@erols.com

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	45 s to 60 s

Physical Parameters

Size	Not specified
Weight	99 lb
Power Requirements	None

Logistical Parameters

Consumables Required	None
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Information not available
Environmental Conditions	None
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Portaflex 300 Decontamination Showers
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Portaflex Decontamination Shower Series***

ID# 24

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Portaflex Decontamination Showers are a series of decontamination showers used to wash skin and personal equipment. The Portaflex Decontamination Showers are manufactured in the U.S. by Hughes Safety Showers. The system primarily employs mechanical technology. The series is comprised of four different showers, the Portaflex 75, 200, 300, and 500. The showers vary only in size and weight. The Portaflex 75 is the smallest of the shower series. The shower unit is a compact unit and is only to be used until a major, full-size unit is available. The Portaflex 75 is made of a heavy-duty stainless steel pipe work base. It is equipped with a 1.5 in Durline flexible hose with six spray nozzles that disperses water on all sides of the contaminated individual. The Portaflex 75 can be set up in 30 s. The Portaflex 200 is a full size decontamination shower weighing 29.5 kg and is 128 cm long, 52 cm wide, and 17 cm high. The shower base is made from stainless steel pipe work and can also be set up in 30 s. The Portaflex 300 is also a full size decontamination shower. It weighs 25 kg and is 77 cm long, 50 cm wide, and 19 cm high. The shower is made up of four 0.5 in (38 mm) lay-flat Duraline hoses, that form four shower legs. Each leg is fitted with four spray nozzles. When under pressure, the hose legs and the base frame assembly become rigid, thus forming a stable frame for the decontamination of personnel. The system can be assembled in 45 s and can be easily transported in a carrying case that doubles as the base platform of the shower unit. The Portaflex 500 is a multi-personnel decontamination shower module. It weighs 85 kg and is 140 cm long, 40 cm wide, and 49 cm high. The system is designed to provide the decontamination of mass casualties. The Portaflex 500 is comprised of 5 separate shower modules that are inter-connected. The system can also come equipped with screens for privacy. The entire system can be assembled in less than 5 min.

Availability Commercially available

Current User	The Portaflex 500 is a multi-personnel decontamination shower module. It weighs 85 kg and is 140 cm long, 40 cm wide, and 49 cm high. The system is designed to provide the decontamination of mass casualties. The Portaflex 500 is comprised of five separate shower modules that are inter-connected. The system can also come equipped with screens for privacy. The entire system can be assembled in less than 5 min.
Manufacturer	Hughes Safety Showers USA 115 N. Lee St. Suite 502 Alexandria, VA 22314 703–836–7486 (Tel) 703–836–8090 (Fax) email: hoyas1@erols.com
Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water
Capacity/Throughput	Not specified
Set-up Time	30 s to 5 min

Physical Parameters

Size	Portaflex 75 - 3.41 x 2.50 x 0.52 (ft) Portaflex 200 - 4.20 x 1.70 x 0.55 (ft) Portaflex 300 - 2.52 x 1.64 x 0.62 (ft) Portaflex 500 - 4.60 x 1.31 x 1.60 (ft)
Weight	75 lb to 37.4 lb 200 lb to 64.9 lb 300 lb to 55 lb 500 lb to 187 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified

Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

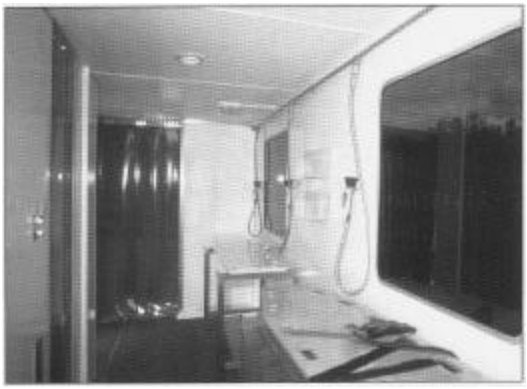
Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Response and Decontamination Unit

ID# 25



Decontamination Process

Physical (removes contaminant) or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes

The Response and Decontamination Unit is a multi-purpose unit that is used to decontaminate skin and personal equipment that have become contaminated with chemical agents. The unit is commercially available in the U.S. The unit consists of a 6 m long trailer that is equipped with a water heater and two showers for individuals. The shower area is large enough to accommodate walking personnel as well as victims on stretchers.

Availability

Commercially available

Current User

Not specified

Manufacturer

Hughes Safety Showers USA
115 N. Lee St. Suite 502
Alexandria, VA 22314
703–836–7486 (Tel)
703–836–8090 (Fax)
email: hoyas1@erols.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated

Not specified

Decontaminant Solutions

Not specified

Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	19.68 L trailer (ft)
Weight	Not specified
Power Requirements	240 V, 2.2 kVA generator

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

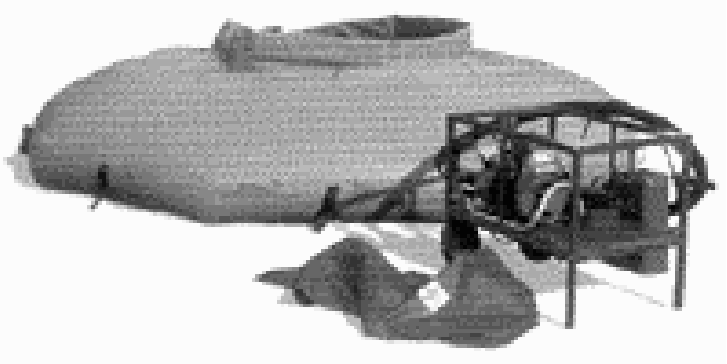
Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Blast Guard

ID# 26



Decontamination Process

Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	Yes

Application Notes

The Blast Guard dispersion suppressive foam system can be configured to include a tent, mixer and pump, and reservoir. The system is used to contain an improvised Explosive Device (IED) with a chemical or biological add-on. The foam system renders most forms of improvised explosive, chemical and biological devices, as well as dispersal devices, safe, and prevents the escape or any aerosol hazard. The tent is used to contain fragments from typical briefcase sized bombs containing up to 1 kg of explosive. It can be used to mitigate explosions and to protect against any explosion or dispersal when using a render safe procedure, including robotic deployment, providing time to evacuate an area with minimal risk before EOD personnel start investigating the device. The system may be deployed inside a building or outside. The tent is made from three layers of ballistic material, and has a rapid opening, one-pieced zippered door and large bottom opening. Water is pumped to the mixer where the surfactant GC3 and the decontaminant are added. Operationally, equipment requires a water flow rate setting and foam flow rate setting. Digital readout is part of the equipment. Tent filling takes approximately 1 min and because the foam is nontoxic, the operator is not at risk.

Availability

In production now. On market since 1999

Current User

Australian Army

Manufacturer

Irvin Aerospace Canada Ltd.
POC: Mr. Doug Eaton
479 Central Avenue, P.O. Box 280
Ft. Erie, Ontario, Canada L2A 5M9
905–871–6510 (Tel)

Developed under Canadian Government license with support from USA

Source

Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated	G, V, agents; H, L vesicants
BW Agents Decontaminated	Demonstrated performance against all known biological agents
High Hazard TIMs Decontaminated	Ongoing program
Medium Hazard TIMs Decontaminated	Ongoing program
Low Hazard TIMs Decontaminated	Ongoing program
Decontaminant Solutions	CASCAD contains a proprietary foaming and decontamination material (biodegradable and nonflammable). It is mixed on demand on site using either a fresh or salt-water source. CASCADE chemical formula is available from Irvin Aerospace Canada Ltd.
Capacity/Throughput	Not applicable
Set-up Time	Easy to use. Quick connects on all hose fittings. Tent can be assembled in 60 s and system operational in 5 min depending upon water source.

Physical Parameters

Size	Dependant upon configuration but will be minimally 42 in long x 27 in wide x 37 in high
Weight	Tent - 30 lb; system - 450 lb at a minimum
Power Requirements	12 V dc power (battery provided) plus water pump (if not specified)

Logistical Parameters

Consumables Required	Water (salt, fresh, gray or potable); chemical reagents and surfactant; bomb tent
Maintenance Repairs Required	Routine maintenance and operator training
Shelf Life	Tent and mechanical equipment is 5 yr currently. Chemicals are 2 yr currently.
Transportability	Can be transported in large SUV or similar.
Durability	Ruggedized commercial equipment
Environmental Conditions	Operates in common environmental conditions down to 41 °F (requires special procedures below 41 °F)
Environmental Considerations	Waste disposal
Resources	2 man to 3 man per team (minimum); tent can be maneuvered by 1 man or can be delivered robotically
Unit Cost	$87.8K, approximately; depends on configuration
Maintenance Cost	Depends on configuration

Warranty	1 yr or 2 yr depending on configuration

Special Requirements

Operator Skills Required	Competent bomb squad technician
Operator Training Required	40 h
Training Available	Full operator and trainer
Manuals Available	User manuals, training guidelines
Support Equipment	Depends upon equipment configuration. Blast Guard, tent, mixer and pump, and reservoir.
Testing Information	Available from Irvin Aerospace Canada Ltd.
Applicable Regulations	None known

General

Equipment Name ***First Responder's Blast Guard***

ID# 27

Picture Not Available

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	Yes

Application Notes Bomb containment tent using an aqueous foam containing reactive chemistry ingredients. To contain an improvised Explosive Device (IED) with a chemical or biological add-on. The system may be deployed inside a building or outside. The system is typically used to contain the IED contents under a controlled explosion and prevent the escape or any aerosol hazard. It may also be used to contain fragments from typical briefcase sized bombs containing up to 1 kg of explosive. Operationally, calibration required for foam calculation and surfactant volume measurement.

Availability Commercial; in production 2000

Current User Early version used by RCMP in Canada

Manufacturer Irvin Aerospace Canada Ltd.
POC: Mr. Doug Eaton
479 Central Avenue, P.O. Box 280
Ft. Erie, Ontario, Canada L2A 5M9
905–871–6510 (Tel)

Developed under Canadian Government license with support from RCMP

Source Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated G, V, agents; H, L vesicants

BW Agents Decontaminated Demonstrated performance against all known biological agents

High Hazard TIMs Decontaminated Ongoing program

Medium Hazard TIMs Decontaminated Ongoing program

Low Hazard TIMs Decontaminated Ongoing program

Decontaminant Solutions	CASCAD contains a proprietary foaming and decontamination material (biodegradable and nonflammable). It is mixed on demand on site using either a fresh or salt-water source. CASCADE chemical formula is available from Irvin Aerospace Canada Ltd.
Capacity/Throughput	Not applicable
Set-up Time	Easy to use. Quick connects on all hose fittings. Tent can be assembled in 60 s and system operational in 5 min depending upon water source.

Physical Parameters

Size	Package under development
Weight	350 lb at a minimum
Power Requirements	Compressed air bottle(s)

Logistical Parameters

Consumables Required	Water (salt, fresh, gray or potable); chemical reagents and surfactant; bomb tent
Maintenance Repairs Required	Routine maintenance and operator training
Shelf Life	Tent and mechanical equipment is 5 yr currently. Chemicals are 2 yr currently.
Transportability	Can be transported in large SUV or similar.
Durability	Ruggedized commercial equipment
Environmental Conditions	Operates in common environmental conditions down to 41 °F (requires special procedures below 41 °F)
Environmental Considerations	Waste disposal
Resources	2 man per team
Unit Cost	Cheaper, less capable system based on Blast Guard
Maintenance Cost	Depends on configuration
Warranty	1 yr or 2 yr depending on configuration

Special Requirements

Operator Skills Required	Competent bomb squad technician
Operator Training Required	40 h
Training Available	Full operator and trainer
Manuals Available	User manuals, training guidelines
Support Equipment	Depends upon equipment configuration
Testing Information	Available from Irvin Aerospace Canada Ltd.
Applicable Regulations	As applicable to compressed air cylinders

General

Equipment Name ***First Responder's Surface Decon Unit***

ID# 28

Picture Not Available

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes Used to thoroughly decontaminate all nonsensitive equipment. Can be used inside or outside. Full IPE required. Operationally, equipment requires a water flow rate setting and a foam flow rate setting. Digital readout part of equipment.

Availability Commercial; in production 2000

Current User Under development

Manufacturer Irvin Aerospace Canada Ltd.
POC: Mr. Doug Eaton
479 Central Avenue
P.O. Box 280
Ft. Erie, Ontario, Canada L2A 5M9
905–871–6510 (Tel)

Developed under Canadian Government license

Source Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated G, V, agents; H, L vesicants

BW Agents Decontaminated Demonstrated performance against all known biological agents

High Hazard TIMs Decontaminated Under study

Medium Hazard TIMs Decontaminated Under study

Low Hazard TIMs Decontaminated Under study

Decontaminant Solutions CASCAD contains a proprietary foaming and decontamination material (biodegradable and nonflammable). It is mixed on demand on site using either a fresh or salt-water source. CASCADE chemical formula is available from Irvin Aerospace Canada Ltd.

Capacity/Throughput	10 vehicles per load minimum (depending upon configuration)
Set-up Time	Easy to use. Quick connects on all hose fittings. System operational in 5 min depending on water source.

Physical Parameters

Size	Configuration dependant but will be minimally 36 L x 18 W x 24 H (in)
Weight	350 lb at a minimum
Power Requirements	12 V dc power (battery provided) plus water pump (if not specified)

Logistical Parameters

Consumables Required	Water (salt, fresh, gray or potable); chemical reagents
Maintenance Repairs Required	Routine maintenance and operator training
Shelf Life	Tent and mechanical equipment is 5 yr currently. Chemicals are 2 yr currently.
Transportability	Can be transported in large SUV or similar.
Durability	Ruggedized commercial equipment
Environmental Conditions	Operates in common civilian environments
Environmental Considerations	Waste disposal
Resources	2 man per team (minimum)
Unit Cost	Under development. (Will be cheaper, less capable version of Blast Guard equipment)
Maintenance Cost	Under development
Warranty	1 yr or 2 yr depending on configuration

Special Requirements

Operator Skills Required	Minimum training
Operator Training Required	8 h
Training Available	Full operator and trainer
Manuals Available	User manuals, training guidelines
Support Equipment	Water pump or fire truck
Testing Information	Available from Irvin Aerospace Canada Ltd.
Applicable Regulations	None known

General

Equipment Name

CASCAD

ID# 29

Decontamination Process

Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

Used to thoroughly decontaminate all nonsensitive equipment (can be used inside or outside). Full IPE required. It is an aqueous biodegradable/nonflammable foam designed to contain and eliminate chemical and biological agents, and for removing radioactive particle contamination. CASCAD surrounds a suspected CB agent contamination site and then removes and destroys any agents present. It is mixed on demand on site using either a fresh or salt-water source. For surface decontamination, the foam is easily applied, rapidly covers large areas, and sticks to vertical surfaces. Foam also has fire suppression properties and can be used as a fire fighting foam.

Availability

Commercially available

Current User

Australian Army, Tech. Escort group and Rest Ops group in USA

Manufacturer

Irvin Aerospace Canada Ltd.
POC: Mr. Doug Eaton
479 Central Avenue, P.O. Box 280
Ft. Erie, Ontario, Canada L2A 5M9
905–871–6510 (Tel)

Source

Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated

G, V, agents; H, L vesicants

BW Agents Decontaminated

All (agents not specified)

High Hazard TIMs Decontaminated

Ongoing program

Medium Hazard TIMs Decontaminated

Ongoing program

Low Hazard TIMs Decontaminated

Ongoing program

Decontaminant Solutions	CASCAD contains a proprietary foaming and decontamination material (biodegradable and nonflammable). It is mixed on demand on site using either a fresh or salt-water source. CASCADE chemical formula is available from Irvin Aerospace Canada Ltd.
Capacity/Throughput	Decontaminates 100 vehicles per hour (minimum)
Set-up Time	Easy to use. Quick connects on all hose fittings. Tent can be assembled in 60 s and system operational in 5 min depending upon water source.

Physical Parameters

Size	42 L x 27 W x 37 H (in) minimum
Weight	600 lb
Power Requirements	12 V dc power (battery provided) plus water pump (if not specified)

Logistical Parameters

Consumables Required	Water, (salt, fresh, gray or potable); chemical reagents
Maintenance Repairs Required	Routine maintenance and operator training
Shelf Life	Tent and mechanical equipment is 5 yr currently. Chemicals are 2 yr currently.
Transportability	Can be transported in large SUV or similar.
Durability	Ruggedized commercial equipment
Environmental Conditions	Operates in common military environments
Environmental Considerations	Waste disposal
Resources	2 man or 3 man per team (minimum)
Unit Cost	Depends on configuration. Refer to Irvin Aerospace Canada for prices.
Maintenance Cost	Depends on configuration
Warranty	1 yr or 2 yr depending on configuration

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	8 h of training is required to operate the equipment
Training Available	Full operator and trainer
Manuals Available	User manuals, training guidelines
Support Equipment	Depends upon equipment configuration
Testing Information	Available from Irvin Aerospace Canada Ltd. Canadian Forces and French Government testing demonstrated CASCAD as an effective method in removing radioactive contaminated dust from surfaces and controlling the dust.
Applicable Regulations	None known

General

Equipment Name ***COLPRO***

ID# 30

Picture Not Available

Decontamination Process	Physical (removes contaminant) and/or Chemical (neutralizes contaminant)
Applications	**Personnel**: Yes; **Equipment**: Yes; **Infrastructure**: No
Application Notes	Use in any contaminated area and personnel decontamination
Availability	In production since 2000
Current User	Earlier version in use by Canadian Department of National Defense
Manufacturer	Irvin Aerospace Canada Ltd. POC: Mr. Doug Eaton 479 Central Avenue, P.O. Box 280 Ft. Erie, Ontario, Canada L2A 5M9 905–871–6510 (Tel)
Source	Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated	All known military chemical agents
BW Agents Decontaminated	Under study
High Hazard TIMs Decontaminated	Under study
Medium Hazard TIMs Decontaminated	Under study
Low Hazard TIMs Decontaminated	Under study
Decontaminant Solutions	Aqueous foam containing reactive chemistry ingredients
Capacity/Throughput	100 walking per hour
Set-up Time	Can be erected in 45 min with operators using protective gear

Physical Parameters

Size	Dependant upon configuration
Weight	Dependant upon configuration
Power Requirements	110 / 200 V, 60 Hz

Logistical Parameters

Consumables Required	Filters Decontaminant Reactive Skin Decontamination Lotion (RSDL) as required to decontaminate affected skin areas
Maintenance Repairs Required	Routine maintenance and operator training
Shelf Life	Tent and mechanical equipment is 5 yr currently; chemicals are 2 yr currently
Transportability	Can be transported by truck, container or palletized for trailer use; ruggedized equipment
Durability	Ruggedized commercial equipment
Environmental Conditions	Operates in common military environments
Environmental Considerations	Waste disposal
Resources	4 man team (minimum)
Unit Cost	Depends on configuration. Refer to Irvin Aerospace Canada for prices.
Maintenance Cost	Depends on configuration
Warranty	1 yr

Special Requirements

Operator Skills Required	Competent NBC training
Operator Training Required	8 h of training is required to operate the equipment
Training Available	Full operator and trainer
Manuals Available	User manuals, training guidelines
Support Equipment	Generator 10 kVA (Also available from Irvin Aerospace Canada)
Testing Information	Available from Irvin Aerospace Canada Ltd.
Applicable Regulations	None known

General

Equipment Name ***Decon System for Sensitive Materials (DSSM)***

ID# 31

Picture Not Available

Decontamination Process Chemical (neutralizes contaminant) Deradiation, Disinfection, and Detoxification

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The system decontaminates vehicle interiors, optical equipment, electronic equipment, personal weapons, and individual PPE equipment by deradiation, disinfection, and detoxification.

Availability Commercially available

Current User Federal German Armed Forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
+49–7195–142262 (Tel)
+49–7195–142780 (Fax)
email: hans-joachim.toepfer@de.kaercher.com

U.S. Agent: Life Safety Systems
343 Soquel Avenue, Suite 317
Santa Cruz, CA 95062
POC: Bill Conklin
831–728–9090 (Tel)
831–429–2224 (Tel)
info@lifesafetysys.com

Source KARCHER/U.S. Agent: Life Safety Systems

Operational Parameters

CW Agents Decontaminated Known theater agents

BW Agents Decontaminated Known theater agents

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Self contained diesel generator with 3 h run time per tank.

Logistical Parameters

Consumables Required	Water decontaminant
Maintenance Repairs Required	Monthly test
Shelf Life	10 yr plus
Transportability	Wheeled trailer assembly requires tractor rig to tow to site
Durability	Built to military specifications
Environmental Conditions	Operates in most climate conditions
Environmental Considerations	Protect from freezing
Resources	2 man to 3 man crew required
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Advanced training required
Operator Training Required	40 h of training required to operate equipment
Training Available	Yes, on site
Manuals Available	User manuals
Support Equipment	Tractor rig to tow trailer unit to decon site
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name ***Field Shower System***

ID# 32

Picture Not Available

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes Allows 2 persons to shower with or without decontamination agents

Availability Commercially available

Current User Various military and civil defense organizations

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
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POC: Bill Conklin
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info@lifesafetysys.com

Source KAR0CHER/U.S. Agent: Life Safety Systems

Operational Parameters

CW Agents Decontaminated Known theater agents

BW Agents Decontaminated Known theater agents

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput Not specified

Set-up Time	30 min

Physical Parameters

Size	6.5 ft
Weight	119 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Water decontaminant
Maintenance Repairs Required	Inspect hoses every 6 mo
Shelf Life	Indefinite
Transportability	Easily transported, light transport vehicle
Durability	Constructed of stainless steel, built to military specifications
Environmental Conditions	Works in most climates, must be protected from freezing conditions
Environmental Considerations	Protect from freezing
Resources	1 person to operate
Unit Cost	$3.5K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic assembly skills
Operator Training Required	2 h of training is required to operate equipment
Training Available	Yes, on site
Manuals Available	User manuals
Support Equipment	Not specified
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name

Karcher Decojet-Trailer Decontamination System

ID# 33

Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	Yes

Application Notes

The Decojet-Trailer is a mobile decontamination system used to decontaminate personal equipment, exterior equipment, and large areas. The system is currently in service in Australia, Austria, and Portugal. The decontaminant employed is dispersed at high-pressures. The Decojet-Trailer carries all necessary decontamination chemicals, as well as 1000 L of water, to allow for a limited degree of independent operation. The Decojet-Trailer is equipped with attached pumps, which extract water from sources (i.e., rivers, streams) up to a maximum suction height of 5 m. The system also carries dry steam generators for further decon of contaminated materials.

Availability

Commercially available

Current User

In service in Australia, Austria, and Portugal

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
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Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not
Decontaminant Solutions	Water
Capacity/Throughput	Decontaminates 150 personnel/hour and 15 to 20 sets of personal equipment per hour
Set-up Time	Not specified

Physical Parameters

Size	16.92 L x 8.03 W x 8.07 H (ft)
Weight	6600 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Information not available
Shelf Life	Not specified
Transportability	Mobile decontamination unit trailer system
Durability	Built to military specifications
Environmental Conditions	All climate operation
Environmental Considerations	Protect from freezing
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Technical skills required
Operator Training Required	40 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Medium transport vehicle for towing, water source
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Mediclean***

ID# 34

Picture Not Available

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes This system was developed for the decontamination of persons who have come into contact with chemical, biological agents or radioactive fall-out. Used to clean exposed skin and wound tissues.

Availability Commercially available

Current User Various military and civil defense organizations

Manufacturer

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info@lifesafetysys.com)

Source KARCHER/U.S. Agent: Life Safety Systems

Operational Parameters

CW Agents Decontaminated Known theater agents

BW Agents Decontaminated Known theater agents

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions	Not specified
Capacity/Throughput	Dependent on individual requirement for victim decontamination
Set-up Time	Under 30 min

Physical Parameters

Size	2.2 ft x 1.7 ft x 2.3 ft
Weight	88.5 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Water decontaminant
Maintenance Repairs Required	Quarterly start-up is required
Shelf Life	Indefinite
Transportability	Easily transported
Durability	Built to military specifications
Environmental Conditions	Operates in most climate conditions
Environmental Considerations	None
Resources	1 person to operate
Unit Cost	$6K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic medical skills
Operator Training Required	5 h to 8 h of training is required to operate equipment
Training Available	Yes, on site
Manuals Available	User manuals
Support Equipment	None
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name ***Mobile Environmental Protection Container***

ID# 35

Picture Not Available

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes Information not available

Availability Commercially available

Current User Various military and civil defense organizations

Manufacturer

KARCHER
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Source KARCHER/U.S. Agent: Life Safety Systems

Operational Parameters

CW Agents Decontaminated Known theater agents

BW Agents Decontaminated Known theater agents

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput	20 persons per hour, up to 4 to 8 vehicles per hour, or 4 to 8 sets of decon clothing and materials
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	5000 lb
Power Requirements	On board generator

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Quarterly start-up is required
Shelf Life	10 yr to 20 yr
Transportability	A vehicle is required to move equipment to site
Durability	Built to military specifications
Environmental Conditions	Operates under most climate conditions
Environmental Considerations	None
Resources	2 person crew required
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Advanced decontamination skills
Operator Training Required	5 d of training is required to operate equipment
Training Available	Yes, on site
Manuals Available	User manuals
Support Equipment	Not specified
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name

Karcher DT60 Decontamination Tent

ID# 36

Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The DT60 Decontamination Tent is designed to decontaminate skin and personal equipment. The tent is currently in service with the Portuguese Air Force. The double-walled tent is supported by an inflatable tubular frame, which is inflated using an included frame-mounted compressor. Should the tent undergo any loss in pressure, the compressor will re-inflate the supporting tubes automatically. Two people can erect the DT60 in approximately 5 min and personnel enter the tent through a zip-fastened entrance flap. The width of the entrance is 1.5 m and the height of the entrance is 2 m.

Availability

Commercially available

Current User

In service with the Portuguese Air Force

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
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Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

GB, VX, HD

BW Agents Decontaminated

All

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water
Capacity/Throughput	Decontaminates 60 sets of clothing and equipment per hour
Set-up Time	5 min

Physical Parameters

Size	7.2 L x 7.75 W x 7.8 H (ft)
Weight	94 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Light transport required
Durability	Not specified
Environmental Conditions	The outside of the tent has a temperature resistance ranging from –22 °F to +176 °F, while the inside of the tent has a temperature resistance ranging from –22 °F to +284 °F.
Environmental Considerations	Not specified
Resources	Two people to erect
Unit Cost	$7.8K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic assembly skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Karcher SCS 1200 DE Lightweight Decontamination System***

ID# 37

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The SCS 1200 DE is a lightweight decontamination system designed to decontaminate skin and personal equipment, and exterior equipment (i.e., tracked and wheeled vehicles, aircraft).

Availability Commercially available

Current User In service within Africa, Europe, and the USA

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
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Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Known theater agents

BW Agents Decontaminated Known theater agents

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs	Not specified
Decontaminated Decontaminant Solutions	Not specified
Capacity/Throughput	Dispenses 450 L to 1200 L of decontaminant/hour
Set-up Time	Not specified

Physical Parameters

Size	3.60 L x 2.46 W x 2.46 H (ft)
Weight	407 lb
Power Requirements	8.5 hp diesel engine

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Monthly test
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Built to military specifications
Environmental Conditions	All climate operation
Environmental Considerations	Protect from freezing
Resources	One person to operate
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic operator skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Karcher HDS 1200 EK High-Pressure Steam Jet Cleaner Unit***

ID# 38

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The HDS 1200 EK is a high-pressure steam jet cleaner unit used for a variety of decontamination tasks. This system, in service with the German armed forces, employs mechanical technology and disseminates high-pressure cold or hot water, steam, or dry steam to decon contaminated materials. The system utilizes a high-pressure pump (up to 50 bar) capable of raising water up to 5 m from streams and rivers. All system components are mounted on skids with fold-down wheels.

Availability Commercially available

Current User In service with the German armed forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
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Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water, TDE202 (detoxification emulsion)
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	4.75 L x 2.46 W x 3.64 H (ft)
Weight	616 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Light transport vehicle
Durability	Built to military specifications
Environmental Conditions	All climate operation
Environmental Considerations	Protect from freezing
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic operator skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Decont Jet 21

ID# 39

Decontamination Process

Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The Decont Jet 21 is designed to decontaminate exterior equipment. The system employs mechanical technology and disseminates water at high-pressures. The Decont Jet 21 is comprised of two sub-systems, a high-pressure water spray stem and a gas turbine for decontamination with hot gas. Both sub-systems are mounted on a semi-trailer mobile platform. The frame is held by a hydraulic crane and is equipped with high-pressure rotating nozzles and guidance arrangements for the hot gases. The system's telescopic design allows the decontamination of any size vehicle and large areas of terrain. The system is equipped with a water tank capacity of 6000 L and a fuel consumption rate of 870 L/h.

Availability

Commercially available

Current User

Federal German Armed Forces

Manufacturer

KARCHER
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Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Not specified
BW Agents Decontaminated	Not specified
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Decontaminates 10 vehicles/hour
Set-up Time	Not specified

Physical Parameters

Size	41.66 L x 8.20 W x 11.48 H (ft)
Weight	59400 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, fuel
Maintenance Repairs Required	Yes (monthly)
Shelf Life	10 yr to 20 yr dependent on use
Transportability	Requires tractor/rig to move to decontamination site; system is stand-alone trailer mounted
Durability	Built to military specifications
Environmental Conditions	-40 °F to 122 °F (operating temperature)
Environmental Considerations	Practically chemical free decontamination using hot air and gases
Resources	2 person crew
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Heavy equipment operator
Operator Training Required	7 d of training is required to operate this system
Training Available	Yes, on site
Manuals Available	User manual
Support Equipment	Towing vehicle to transport trailer to decontamination site
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name

Karcher DECOCONTAIN 3000 Decontamination System

ID# 40

Decontamination Process

Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	Yes

Application Notes

The DECOCONTAIN 3000 is similar to the DECOCONTAIN 1500 and is also designed to decontaminate skin and personal equipment, exterior equipment, and large areas against both biological and chemical agents. The DECOCONTAIN 3000 employs chemical (primary) and mechanical (secondary) technologies and disperses microemulsions, water, and other decontaminants at high pressures. It was designed for deployment at battalion level or higher and forms the technical basis for the setting-up of a decontamination site. Material decontamination is conducted in 3 steps: prewash, main treatment, and post-treatment. A number of separate decontamination modules (i.e., Karcher MPS 3200, C8-DADS, and MPDS) are housed in the Decocontain 3000 in order to carry out thorough decontamination. During pre-treatment, tanks, vehicles, and other equipment are cleansed of heavy soiling which contains contamination using high pressure (55 bar) cold water. During main treatment, the C8 DADS module is used. The detoxification of chemical agents is accomplished using the Karcher detoxification emulsion TDE 202. Personnel decontamination is achieved using a two-step, pulsating shower procedure. Detoxification and disinfection of clothing and equipment is carried out using hot steam. Moreover, terrain decontamination can be achieved using an aqueous detoxification solution. Terrain decontamination may require employing additional technologies, such as oxidation, aqueous strong bases, semi-aqueous/nonaqueous, and solvent.

Availability

Commercially available

Current User

Federal German Armed Forces

Manufacturer	KARCHER Alfred Karcher Gmbh & Company Alfred-Karcher-Strasse 28-40 Winnenden, Germany D-71364 +49–7195–142262 (Tel) +49–7195–142780 (Fax) email: hans-joachim.toepfer@de.kaercher.com U.S. Agent: Life Safety Systems 343 Soquel Avenue, Suite 317 Santa Cruz, CA 95062 POC: Bill Conklin 831–728–9090 (Tel) 831–429–2224 (Tel) info@lifesafetysys.com
Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water and other decontaminants
Capacity/Throughput	Decontaminates 12 to 16 vehicles/hour, 15 to 20 sets of clothing/hour, 107636 ft^2 of terrain/hour, and 120 persons/hour
Set-up Time	Not specified

Physical Parameters

Size	19.87 L x 8.00 W x 8.00 H (ft)
Weight	25300 lb
Power Requirements	On board power supply

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Yes (monthly)
Shelf Life	Indefinite
Transportability	Mobile decontamination unit
Durability	Built to military specifications
Environmental Conditions	-40 °F to 122 °F (operating temperature)
Environmental Considerations	Not specified
Resources	2 person crew; and truck capable of moving container system.

Unit Cost	$600K, dependent on options
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Advanced operator skills required
Operator Training Required	5 d of training is required to operate this system
Training Available	Yes, on site
Manuals Available	User manual
Support Equipment	Support vehicle to transport as container load.
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name ***Karcher Decontamination Trailer***

ID# 41

Picture Not Available

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The Decontamination Trailer is a mobile decontamination system. The system uses a high-pressure spray of water in the prewash and a high-pressure decontamination emulsion for main treatment. The trailer consists of two subsystems: the trailer and a removable platform. The trailer is designed for the decontamination of both equipment, exterior and skin, and personal equipment, while the platform is used primarily for the decontamination of equipment exteriors. The trailer-mounted subsystem consists of three modules; a cold-water high-pressure unit for the prewash, a decontamination emulsion generator for the main treatment, and a steam generator for the post-treatment with hot steam. The trailer is also equipped with a shower unit and a tent for the decontamination of skin and personal equipment. The platform subsystem is comprised of two modules: a decontamination emulsion generator for the main treatment and a steam generator. The steam generator sprays cold water for the prewash and steam for post-treatment. Water is stored in a 1000 L tank to ensure immediate start-up.

Availability Commercially available

Current User In service within Europe

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
+49–7195–142262 (Tel)
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email: hans-joachim.toepfer@de.kaercher.com

U.S. Agent: Life Safety Systems
343 Soquel Avenue, Suite 317
Santa Cruz, CA 95062
POC: Bill Conklin
831–728–9090 (Tel)
831–429–2224 (Tel)
info@lifesafetysys.com

Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	21.32 L x 7.54 W x 8.53 H (ft)
Weight	11000 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, fuel
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Mobile decontamination unit requires heavy transport
Durability	Built to military specifications
Environmental Conditions	All operating climates
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	$26K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic mechanical skills
Operator Training Required	72 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Karcher SCS 1800 DE Decontamination System***

ID# 42

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The SCS 1800 DE decontamination system is designed to decontaminate skin, personal equipment, and exterior equipment (i.e., tracked and wheeled vehicles, aircraft). The SCS 1800 DE is a high-performance module, which employs mechanical technology. The SCS 1800 DE dispenses decontaminants, warm water, and other chemicals for decontamination. Depending on which decontaminants are utilized, the system may also employ either mechanical or chemical technologies. The system output can be varied from 300 L/h to 1800 L/h with a pressure range of 20 to 110 bar and is powered by a four-stroke diesel engine.

Availability Commercially available

Current User In service within Europe

Manufacturer

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Alfred Karcher Gmbh & Company
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U.S. Agent: Life Safety Systems
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info@lifesafetysys.com

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water, TDE 202 (detoxification emulsion)
Capacity/Throughput	Dispenses 300 L to 1800 L of decontaminant/hour
Set-up Time	Not specified

Physical Parameters

Size	3.60 L x 2.79 W x 3.40 H (ft)
Weight	902 lb
Power Requirements	Four-stroke diesel engine

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Monthly test
Shelf Life	Not specified
Transportability	Light transport vehicle
Durability	Built to military specifications
Environmental Conditions	All operating climates
Environmental Considerations	Protect from freezing
Resources	One person to operate each module
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic operator skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Decojet Decontamination System

ID# 43

Decontamination Process

Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The Decojet Decontamination system is used to decontaminate skin and personal equipment. The Decojet employs both mechanical and chemical technologies to decontaminate items by disseminating both water and mixtures of decontamination solutions at high-pressures onto contaminated surfaces. The system is equipped with a 435 L water tank with a run-back pipe that preheats the water in the tank. An additional 200 L water tank is available along with an injector system for mixing and applying decontamination solutions. The system also contains a two-stage personnel shower with an injection system in order to allow the addition of decontaminants to the water jets. The Decojet is used as a quick reaction first aid decontamination system close to the front line or as a company level self-decontamination measure.

Availability

Commercially available

Current User

In service with France and various countries in the Middle East and Asia

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
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Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Not specified
BW Agents Decontaminated	Not specified
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	2321 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontamination agents, water
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Light transport vehicle
Durability	Built to military specifications
Environmental Conditions	All climates
Environmental Considerations	Protect from freezing
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic operator skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Karcher DECOCONTAIN 1500 Decontamination System***

ID# 44

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	Yes

Application Notes The DECOCONTAIN 1500 is a compact decontamination system designed to decontaminate skin and personal equipment, exterior equipment, and large areas against both biological and chemical agents. The DECOCONTAIN 1500 disperses microemulsions, water, and other decontaminants at high pressures. The system is constructed as a main component for NBC-defense troops and is the basis for the setting-up of a decontamination site. Material decontamination is conducted in 3 steps; prewash, main treatment, and post-treatment. A number of separate decontamination modules (i.e., Karcher MPS 3200, C8-DADS, and MPDS) are housed in the DECOCONTAIN 1500 in order to perform decontamination. During pretreatment, tanks, vehicles, and other equipment are cleansed of heavy soiling which contains contamination using the high pressure (55 bar) and cold water of the MPS 3200. During main treatment, the C8 DADS module is used. Decontamination is accomplished using the Karcher detoxification emulsion, TDE 202. Personnel decontamination is achieved using a two-step, pulsating shower procedure. Detoxification and disinfection of clothing and equipment is carried out using steam. Terrain decontamination can be achieved using an aqueous detoxification solution. Terrain decontamination may require employing additional technologies, such as oxidation, aqueous strong bases, semi-aqueous/nonaqueous, and solvent. The DECOCONTAIN 1500 is 5.0 m long, 2.2 m wide, and 2.2 m high. It weighs 4900 kg and can operate in a temperature range from -20 °C to +50 °C. The system is equipped with a 1500 L tank and can decontaminate 6 to 8 tanks or 12 to 16 vehicles in 1 h, 15 to 20 sets of clothing in 1 h, and 10000 m^2 of terrain in 1 h.

Availability Commercially available

Current User In service with the Hungarian Armed Forces

Manufacturer	KARCHER Alfred Karcher Gmbh & Company Alfred-Karcher-Strasse 28-40 Winnenden, Germany D-71364 +49–7195–142262 (Tel) +49–7195–142780 (Fax) email: hans-joachim.toepfer@de.kaercher.com U.S. Agent: Life Safety Systems 343 Soquel Avenue, Suite 317 Santa Cruz, CA 95062 POC: Bill Conklin 831–728–9090 (Tel) 831–429–2224 (Tel) info@lifesafetysys.com
Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	G agents, VX, D
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	C-8 emulsion
Capacity/Throughput	Decontaminates 12 to16 vehicles/hour, 15 to 20 sets of clothing/hour, 107636 ft^2 of terrain/hour, and 120 persons/hour
Set-up Time	Not specified

Physical Parameters

Size	16.40 L x 7.21 W x 7.21 H (ft)
Weight	10780 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant, fuel, water
Maintenance Repairs Required	Monthly testing
Shelf Life	Not specified
Transportability	Mobile decontamination unit
Durability	Not specified
Environmental Conditions	-40 °F to 122 °F (operating temperature)
Environmental Considerations	Not specified

Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Advanced technical skills
Operator Training Required	40 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Medium transport
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Mobile Field Laundry CFL 60

ID# 45

Decontamination Process

Physical (removes contaminant) and Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The CFL 60 is a mobile field laundry system used to decontaminate personal equipment against both chemical and biological agents. The system is manufactured in Germany by Alfred Karcher GmbH & Company and is currently in service with the German and Norwegian armed forces. The system's primary function is to disinfect and launder contaminated garments. The CFL 60 employs both chemical and mechanical technologies to decontaminate items thoroughly. The system is self-sufficient and requires only water and power, which is supplied by water reserves and an integral 125 kVA electrical generator, respectively. The CFL 60 is equipped with folding worktables, mangles, ironing boards, and handling containers. The CFL is a preprogrammed, push button system for easy operation. Washing agents and decontaminant solutions are added automatically. The CFL 60 system contains an air conditioning unit for hot climates and an auxiliary heating system for cold climates, thus allowing the system to operate in all temperatures.

Availability

Commercially available

Current User

In service with German and Norwegian Forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
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Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Not specified
BW Agents Decontaminated	Not specified
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Capable of cleaning 60 kg of personal equipment per hour
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	22000 lb
Power Requirements	125 kVA electrical generator

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Minimal
Shelf Life	Not specified
Transportability	Mobile decontamination unit requires medium transport vehicle
Durability	Not specified
Environmental Conditions	Operates in all environments
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic operator skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Not specified
Support Equipment	Water resource
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Karcher C8-DADS Direct Application Decontamination System***

ID# 46

Decontamination Process Physical (removes contaminant) or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	Yes

Application Notes The C8-DADS is designed for the decontamination of exterior equipment and large areas. The system is in service with Australia, Austria, Egypt, France, Germany, Taiwan, Thailand, and NATO armed forces. Optimum detoxification is accomplished using the Munster (C8) emulsion after cleaning the surface with high-pressure cold water. The C8-DADS uses an aqueous C8 solution to decontaminate chemical and biological warfare agents. To decontaminate terrain, vehicle mounted spray nozzles disperse the decontamination solutions. The basic module can mix up to 254 kg of C8 with water (volume of 1300 L) that can be increased with additional pumping systems. The system may be carried on a truck with the components mounted in a tubular steel frame.

Availability Commercially available

Current User In service with Australia, Austria, Egypt, France, Germany, Taiwan, Thailand, NATO headquarters, and nations in Asia

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
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info@lifesafetysys.com

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	User selected
Capacity/Throughput	Dependent on operation required
Set-up Time	Not specified

Physical Parameters

Size	3.14 L x 2.78 W (ft)
Weight	704 lb
Power Requirements	Four-stroke diesel engine

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Monthly test
Shelf Life	Not specified
Transportability	Units require light transport vehicle
Durability	Built to military specifications
Environmental Conditions	Operates in all environments
Environmental Considerations	Protect from freezing
Resources	Not specified
Unit Cost	$16K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic technical skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Decont Tent

ID# 47

Decontamination Process

Physical (removes contaminant) and Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The Decont Tent is designed for various decontamination tasks. The tent employs low-temperature thermal technology coupled with mechanical technology. The tent is used to shelter contaminated victims from inclement weather during decontamination procedures. Saturated steam or hot gas fed into the tent, via either the Karcher Multipurpose Decontamination System or a similar module, can be used to decontaminate personal clothing and equipment. The tent tubular frame is equipped with a safety overflow valve. The tent tarpaulin has a watertight inner lining with a canvas groundsheet and is constructed of chemical agent resistant material. The tent is equipped with two hose connections to provide wastewater disposal. For stability, four ground loops and guy lines fasten the tent securely.

Availability

Commercially available

Current User

Federal German Armed Forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
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Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	5 min

Physical Parameters

Size	6.56 L x 6.56 W x 7.05 H (ft)
Weight	95 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Quarterly inspection
Shelf Life	10 yr
Transportability	Light transport vehicle
Durability	Constructed of chemical agent resistant material
Environmental Conditions	The temperature resistance of the outside of the tent ranges from -22 °F to +176 °F, while the internal temperature resistance ranges from -22 °F to +284 °F.
Environmental Considerations	The tent is equipped with two hose connections to provide wastewater disposal.
Resources	2 person crew to erect
Unit Cost	$7.6K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	8 h of training is required to operate this system
Training Available	Yes, on site
Manuals Available	User manual
Support Equipment	Karcher multipurpose decontamination system
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name ***Karcher Portable Lightweight Decontamination System DS 10***

ID# 48

Decontamination Process Physical (removes contaminant) and Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The DS 10 is a portable lightweight decontamination system designed for the CB decontamination of personal equipment, and exterior equipment (i.e., vehicles, aircraft, protective suits). The system is in service in Austria, Belgium, Germany, Norway, Sweden, and some countries in the Middle East. This high-pressure system is equipped with a mixing device to generate different solutions or emulsions, thus allowing it to decontaminate a wide variety of items. The DS 10 consists of a 10 L pressure tank, a mixing device, and an air pump to pressurize the system. A pressure relief valve opens if the maximum operating pressure (6 bar) is exceeded.

Availability Commercially available

Current User In service in Austria, Belgium, Germany, Norway, and Sweden.

Manufacturer

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Alfred Karcher Gmbh & Company
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Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	User selected
Capacity/Throughput	Decontaminates an area of 535 ft^2
Set-up Time	15 min

Physical Parameters

Size	Cylinder, 2.30 H and 0.68 (ft) in diameter
Weight	20.9 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant, water
Maintenance Repairs Required	Test semi-annually
Shelf Life	Not specified
Transportability	Man-Pack Portable Decontamination Unit
Durability	Built to military specifications
Environmental Conditions	The system has an operating temperature of 140 °F
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	$1.9K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Yes, on site
Manuals Available	Training manuals
Support Equipment	Decontaminant, water
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Hot Air Generator FB 60 E

ID# 49

Decontamination Process

Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The FB 60 E is a hot air generator used to decontaminate interior equipment, personal equipment, and exterior equipment. It is currently in service with the Australian, German, and U.S. armed forces. The FB 60 E coupled with an interior decontamination extension set with special filters is used to decontaminate interior equipment. The FB 60 E is comprised of a main fan and fuel pump, which are powered by a central 220 V electric motor. Incoming air, drawn through the radial fan, is heated using a burner and heat exchanger. The system requires diesel, diesel-petrol, or kerosene fuels to operate. The FB 60 E can be used for a variety of applications other than decontamination (i.e., ventilating NBC decontamination stations, heating or cooling cabins, cockpits, tents, or shelters).

Availability

Commercially available

Current User

In service with Australian, German, and U.S. Armed Forces

Manufacturer

KARCHER
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info@lifesafetysys.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	GB, VX, HD
BW Agents Decontaminated	All
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Water
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	5.64 L x 2.42 W x 1.01 H (ft)
Weight	441 lb
Power Requirements	Self powered via diesel fuel

Logistical Parameters

Consumables Required	Filters, fuel
Maintenance Repairs Required	Yes (monthly start-up)
Shelf Life	10 yr
Transportability	Not specified
Durability	Built to military specifications
Environmental Conditions	The FB 60 E is capable of working at temperatures as low as -22 °F
Environmental Considerations	Not specified
Resources	1 person to start and monitor
Unit Cost	$17.5K
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	2 h of training is required to operate this system
Training Available	Yes, on site
Manuals Available	User manual
Support Equipment	Light transport
Testing Information	Test data available upon request
Applicable Regulations	Not specified

General

Equipment Name ***Karcher MPDS MultiPurpose Decontamination System***

ID# 50

Decontamination Process Physical (removes contaminant) and Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The MPDS is used to decontaminate skin and personal equipment, exterior equipment, and interior equipment. The system is currently in service with armed forces in Australia, Austria, Canada, Portugal, Sweden, United Kingdom, U.S., and NATO Headquarters. The MPDS is equipped with a high-pressure (60 bar) spray system and depending on the decontaminant used, the MPDS may employ either chemical or mechanical technologies. The MPDS is also equipped with a diesel engine, a burner, and a high-pressure water pump (maximum suction height of 5 m). Liquid decontaminants can be introduced into the water stream via the high-pressure pump at a rate up to 60 L/h. For easy usability, all MPDS operations can be controlled using an electrical control panel. The MPDS can also be used to provide water for showers in the field, steam explosives from munitions, or de-ice aircraft and missile systems. In addition, a sandblasting set is included to allow the removal of corrosion from equipment.

Availability Commercially available

Current User In service with Austria, Belgium, Germany, Norway, Sweden

Manufacturer

KARCHER
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Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	4.10 L x 1.88 W x 2.78 H (ft)
Weight	484 lb
Power Requirements	4-stroke diesel engine that develops 5.6 hp at 3000 rpm

Logistical Parameters

Consumables Required	Decontaminant, Fuel
Maintenance Repairs Required	Monthly start-up and testing
Shelf Life	Not specified
Transportability	Light truck transport
Durability	Built to military specifications
Environmental Conditions	-22 °F to 140 °F (operating temperature)
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Karcher Hot Air Generator FB 20

ID# 51

Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The FB 20 is a hot air generator designed for the decontamination of clothing and other equipment placed inside a chamber or tent.

Availability

Commercially available

Current User

In service with Canada, Denmark, Germany, Norway, Sweden, USA, and other NATO Forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
+49–7195–142262 (Tel)
+49–7195–142780 (Fax)
email: hans-joachim.toepfer@de.kaercher.com

U.S. Agent: Life Safety Systems
343 Soquel Avenue, Suite 317
Santa Cruz, CA 95062
POC: Bill Conklin
831–728–9090 (Tel)
831–429–2224 (Tel)
info@lifesafetysys.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	4.44 L x 1.50 W x 1.98 H (ft)
Weight	171.6 lb
Power Requirements	230 V @ 50 Hz electrical power

Logistical Parameters

Consumables Required	Fuel
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Built to military specifications
Environmental Conditions	All environments
Environmental Considerations	All conditions
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

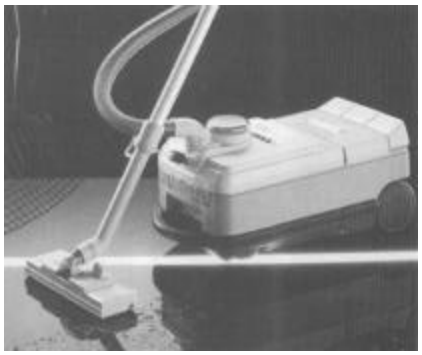
Operator Skills Required	Basic technical skills
Operator Training Required	8 h
Training Available	Yes
Manuals Available	Training manuals
Support Equipment	Light transport vehicle
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

ID# 52

Karcher AEDA1 Decontamination Equipment



Decontamination Process

Physical and Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The AEDA1, in service with German forces, is designed to decontaminate sensitive and interior equipment. The system employs a combination of low-temperature thermal technology and mechanical technology. The AEDA1 is comprised of four components: an aerosol spray dispenser, a hot air generator, a remote-control unit, and a surface cleaning system. Interior decontamination is conducted by spraying the contaminated surfaces with any decontaminant solution. The fine mist remains long enough in the air to decontaminate any contamination in the air. The decontaminant droplets also decontaminate material surfaces on contact. After the aerosol spray, the hot air generator is used to heat up the interior air and the interior equipment to neutralize any remaining agents. A remote-control unit can be used to operate the hot air generator as well as to control the temperature of the air. The surface cleaning system resembles a vacuum cleaner and is used to remove any decontamination solution residue. The cleaner dispenses a liquid disinfecting solution and then vacuums the residue into a waste tank. The surface cleaning system has an output rate of 1 L/min with a pressure of 1 bar.

Availability

Commercially available

Current User

In service with German Armed Forces and Crisis Reaction Forces

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
+49–7195–142262 (Tel)
+49–7195–142780 (Fax)
email: hans-joachim.toepfer@de.kaercher.com

U.S. Agent: Life Safety Systems
343 Soquel Avenue, Suite 317
Santa Cruz, CA 95062
POC: Bill Conklin
831–728–9090 (Tel)
831–429–2224 (Tel)
info@lifesafetysys.com

Source	Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated	Known theater agents
BW Agents Decontaminated	Known theater agents
High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	User selected
Capacity/Throughput	Dispenses 1 L of decontaminant per minute
Set-up Time	15 min to 30 min

Physical Parameters

Size	27 x 19 x 25 (in)
Weight	69 lb
Power Requirements	110 V ac to 220 V ac

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Quarterly test
Shelf Life	Not specified
Transportability	Portable decontamination unit
Durability	Heavy duty construction
Environmental Conditions	Works in all climates
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic skills
Operator Training Required	8 h
Training Available	Yes, on site
Manuals Available	Training manual
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

ID# 53

Karcher M600 Decontaminant Mixer

Decontamination Process

Mixes Decontaminant Agents

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes

The M600 Decontaminant Mixer, in service with NATO forces, is designed to add and mix decontaminants using water jets for use with high-pressure cleaning systems. Depending on the decontaminant used, the M600 may employ either chemical or mechanical technologies. The M600 is equipped with a mixer, a 25 m hose, and a spray lance. The system is linked to a high-pressure system with a pressure hose and an electrical cable.

Availability

Commercially available

Current User

In service with NATO countries

Manufacturer

KARCHER
Alfred Karcher Gmbh & Company
Alfred-Karcher-Strasse 28-40
Winnenden, Germany D-71364
+49–7195–42262 (Tel)
+49–7195–142780 (Fax)
email: hans-joachim.toepfer@de.kaercher.com

U.S. Agent: Life Safety Systems
343 Soquel Avenue, Suite 317
Santa Cruz, CA 95062
POC: Bill Conklin
831–728–9090 (Tel)
831–429–2224 (Tel)
info@lifesafetysys.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	1.83 L x 1.96 W x 2.75 H (ft)
Weight	88 lb
Power Requirements	12 V or 24 V supply

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Monthly test
Shelf Life	Not specified
Transportability	Light truck transport
Durability	Built to military specifications
Environmental Conditions	Operates in all climates
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Basic skills
Operator Training Required	8 h
Training Available	Yes
Manuals Available	Training manuals
Support Equipment	Truck transport
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Atmospheric Pressure Plasma Jet***

ID# 54

Picture Not Available

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The Atmospheric Pressure Plasma Jet (APPJ) is a developmental item designed to decontaminate sensitive and interior equipment. The APPJ is under development by the Los Alamos National Laboratory in New Mexico, USA. The system employs oxidation technology.

Availability Commercially available

Current User Not specified

Manufacturer

Los Alamos National Laboratory
P-24 Plasma Physics, M/S E526
Los Alamos, NM 87545
505–665–6157 (Tel)
505–665–3552 (Fax)
email: herrmann@lanl.gov

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated None

BW Agents Decontaminated None

High Hazard TIMs Decontaminated None

Medium Hazard TIMs Decontaminated None

Low Hazard TIMs Decontaminated None

Decontaminant Solutions None

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

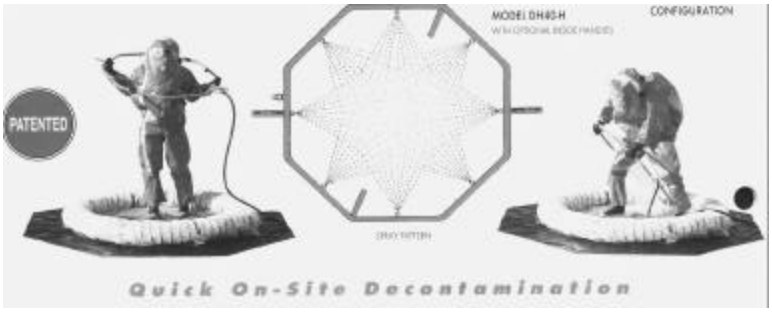
Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decon Hoop***

ID# 55



Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes The Decon Hoop is a portable spray hoop used to decontaminate skin and personal equipment as well as exterior equipment. The Decon Hoop is commercially available in the U.S. and is manufactured by MITI Manufacturing. The apparatus employs mechanical technology.

Availability Commercially available

Current User U.S. Army, U.S. Navy, U.S. Air Force, various municipal fire departments, and several industrial companies in the hazardous chemical industry.

Manufacturer

MITI Manufacturing, Inc.
2996 Teller Court
Grand Junction, CO 81504
970–243–9500 (Tel)
970–243–9200 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Water

Capacity/Throughput Dispenses 4.6 gal/min to 5.1 gal/min

Set-up Time 2 min

Physical Parameters

Size	3.75 o.d. x 3.25 i.d. (ft)
Weight	10 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable decontamination unit
Durability	Constructed from durable heliarc-welded lightweight, corrosion free aluminum pipe and tubes.
Environmental Conditions	Information not available
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	$585 to $775 (based upon quantity and configuration)
Maintenance Cost	Not specified
Warranty	1 yr

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	None
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Decon waste collection pool, portable foot pump, soap injector, water distribution manifolds
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

SNL Decon Formulation

ID# 56

Decontamination Process

Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	Yes

Application Notes

A nontoxic, noncorrosive, aqueous formulation for the rapid mitigation and decontamination of CBW agents. SNL Decon Formulation can be deployed as a foam, liquid spray, or fog. Potentially, the formulation can be used by first responders of an attack and by personnel assigned to restoration of an affected facility after an attack. The formulation works quickly, does not generate toxic by-products. It can be deployed by small handheld devices, similar to fire extinguishers, and in large-scale foam-generating devices. The formulation as liquid spray can be disseminated by means of commercially available paint sprayers. Commercially available cold foggers work well when deploying the formulation as fog.

Availability

Available

Current User

National guards, over 120 Federal, State, and local agencies

Manufacturer

Modec, Inc.
4725 Oakland St.
Denver, CO 80239
800–967–7887 (Tel)
303–373–2699 (Fax)

Developed by Sandia National Laboratories
POC: Brian Kalamanka
www.massdecon.com

Source

Modec, Inc.
www.deconsolutions.com

Operational Parameters

CW Agents Decontaminated

G agents, VX, Mustard

BW Agents Decontaminated

Bacillus globigii (a simulant of anthrax spores), Erwinia herbicola (a simulant for vegetative bacterial cells), MS-2 bacteriophage (a simulant for viruses)

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Nontoxic, noncorrosive, environmental friendly
Capacity/Throughput	50:1 expansion rate
Set-up Time	Immediate

Physical Parameters

Size	Several sizes available of output hose: 1 in, 1-1/2 in, 2 in, or 3 in line
Weight	Varies according to model
Power Requirements	Dependant on equipment, can be delivered manually

Logistical Parameters

Consumables Required	None
Maintenance Repairs Required	Routine
Shelf Life	Indefinite
Transportability	Depends on application
Durability	Ruggedized commercial equipment
Environmental Conditions	Can be operated on all terrains and in remote locations
Environmental Considerations	None
Resources	One person
Unit Cost	Depends on size and application
Maintenance Cost	Minimal
Warranty	Depends on equipment

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Yes
Manuals Available	Yes
Support Equipment	Typical hose line
Testing Information	Available, under www.deconsolutions.com\SNLformulation
Applicable Regulations	Not specified

General

Equipment Name

Reactive Skin Decontaminant Lotion

ID# 57

Decontamination Process

Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	Yes	No

Application Notes

The Reactive Skin Decontamination Lotion (RSDL) is designed to neutralize CWAs on skin and personal equipment. The lotion is manufactured in Canada by O'Dell Engineering Ltd., and is in service with the Canadian Armed Forces. The lotion employs chemical technology and is effective on vesicants (H and L) and nerve agents (G and V). The lotion is supplied in easy to use individual pouches with a foam applicator for personal decontamination and equipment decontamination. The lotion can also be distributed in large containers in order to treat mass casualties. The lotion is nontoxic and has been proven to be safe to use on the eyes. Any left over residue can be washed away with water.

Availability

Commercially available

Current User

Canadian Dept. of National Defense, Netherlands, Australia, OPCW

Manufacturer

O'Dell Engineering Ltd.
28 Hilborn Avenue
Cambridge, Ontario, Canada N1T 1M7
519–740–8620 (Tel)
519–740–9483 (Fax)
email: rsdl@odell.on.ca

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)
Irvin Aerospace Canada Ltd.

Operational Parameters

CW Agents Decontaminated

All known military chemical agents

BW Agents Decontaminated

Effective against some military biological agents. Contact manufacturer for details

High Hazard TIMs Decontaminated

Under study

Medium Hazard TIMs Decontaminated	Under study
Low Hazard TIMs Decontaminated	Under study
Decontaminant Solutions	RSDL; bio-degradable/nonflammable
Capacity/Throughput	Individual decontamination; each person carries own bottle/pouch
Set-up Time	None

Physical Parameters

Size	500 mL bottle or individual pouches (6 in x 6 in x .5 in)
Weight	1.2 lb (pouch is 2 oz)
Power Requirements	None

Logistical Parameters

Consumables Required	None
Maintenance Repairs Required	None
Shelf Life	Call for information
Transportability	Fully portable. Can be carried in pocket or pouch
Durability	Provided in a protective pouch
Environmental Conditions	Operates in common civilian and military environments
Environmental Considerations	Waste disposal
Resources	One person (individual)
Unit Cost	Call for information (volume dependant)
Maintenance Cost	None
Warranty	Not applicable

Special Requirements

Operator Skills Required	Minimal to none
Operator Training Required	Minimal to none
Training Available	1 h
Manuals Available	User manuals, training guidelines, and training simulant
Support Equipment	None
Testing Information	Testing on the RSDL has been done by the Canadian Defense Research Establishment Suffield (DRES) (Government Agency). The following test report is available upon request: Repeated Dermal Toxicity Trial of the Canadian Reactive Skin Decontaminant Lotion (RSDL) (DRES)
Applicable Regulations	Not FDA approved

General

Equipment Name ***Plychem DECAS W Casualty Decontamination Unit***

ID# 58

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The DECAS W is a portable inflatable casualty decontamination shower manufactured in the United Kingdom by Plysu PLC. It is designed for skin and personnel decontamination. It is equipped with a step-down water pressure reducer to moderate water supply pressures and a choice of valve-operated, hand-held showerheads is available. The unit is large enough to accommodate a casualty on a wheeled stretcher with Paramedics attending inside, or several walking wounded. Strategically placed clear windows are included for official observation, and a disposable inner lining can be incorporated. A remote water-heating unit is also available.

Availability Ex stock to maximum few weeks

Current User Fire and ambulance services, hospitals

Manufacturer

Plysu PLC
United Kingdom
U.S. Agent: FSI North America
Division of Fire Safety, International, Inc.
POC: Mark Conron
440–891–1523 (Tel)
440–891–1562 (Fax)
www.fsinorth.com

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Wide range

Medium Hazard TIMs Decontaminated Wide range

Low Hazard TIMs Decontaminated	Wide range
Decontaminant Solutions	Water and detergent
Capacity/Throughput	Less than 50 personnel
Set-up Time	Between 30 min to 60 min 2 min to 3 min to install ready for operation

Physical Parameters

Size	9.35 L x 6.1/4.9 W x 6.7 H (ft) Packed - approximately 3.3 x 2.5 x 1.6 (ft)
Weight	Approximately 88 lb
Power Requirements	Decon unit – none Optional water heating unit - 222 V to 240 V, 5 kW, 32 A

Logistical Parameters

Consumables Required	Compressed air for inflation. Optional disposable inner lining.
Maintenance Repairs Required	Clean, dry, and check over after use.
Shelf Life	5 yr
Transportability	Highly transportable - low weight and small footprint
Durability	Constructed from durable polymer material
Environmental Conditions	Operates in most environments
Environmental Considerations	Safe disposal of collected waste
Resources	1 to 2 people are required to fully operate the decontamination system
Unit Cost	$5.5K to $11.5K depending on specification and optional equipment (e.g., water heating unit)
Maintenance Cost	Very minimal
Warranty	1 yr

Special Requirements

Operator Skills Required	No special skills, but training recommended
Operator Training Required	1 h to 3 h
Training Available	Yes
Manuals Available	User manuals and training media
Support Equipment	Optional water heating and generator for remote use
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

PLYCHEM DPI Decontamination Unit

ID# 59

Decontamination Process

Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes

The PLYCHEM DPI is a portable inflatable decontamination shower manufactured in the United Kingdom by Plysu PLC. It is designed for skin and personnel decontamination. The DPI is constructed from durable polymer material with entry and exit ports. At a rate of 40 L/min, a mist spray of water or water plus decontaminant solution is used in conjunction with an integral brush. External personnel can assist decontamination through optional glove sleeves. Clear windows are included for official observation and a disposable inner lining can be incorporated.

Availability

Ex stock to maximum few weeks

Current User

Fire services and high risk industries

Manufacturer

Plysu PLC
United Kingdom
U.S. Agent: FSI North American
Division of Fire Safety International, Inc.
Berea, OH 44017
POC: Mark Conron
440–891–1523 (Tel)
440–891–1562 (Fax)
www.fsinorth.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Wide range

Medium Hazard TIMs Decontaminated

Wide range

Low Hazard TIMs Decontaminated	Wide range
Decontaminant Solutions	Water and detergent
Capacity/Throughput	Less than 50 personnel
Set-up Time	Between 30 min to 60 min 2 min to 3 min to install ready for operation

Physical Parameters

Size	6.14/4.89 x 6.14/4.89 W x 7.74 H (ft) Packed – approximately 3.3 x 2.5 x 1.6 (ft)
Weight	Approximately 88 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Compressed air for inflation. Optional disposable inner lining.
Maintenance Repairs Required	Clean, dry, and check over after use.
Shelf Life	5 yr
Transportability	Highly transportable - low weight and small footprint
Durability	Constructed from durable polymer material
Environmental Conditions	Operates in most environments
Environmental Considerations	Safe disposal of collected waste
Resources	1 to 2 people are required to fully operate the decontamination system
Unit Cost	$3.5K to $5.5K depending on specification and optional equipment
Maintenance Cost	Very minimal
Warranty	1 yr

Special Requirements

Operator Skills Required	No special skills, but training recommended
Operator Training Required	1 h to 3 h
Training Available	Yes
Manuals Available	User manuals and training media
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *Modular Mass Casualty Decontamination System*

ID# 60

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes Not specified

Availability Commercially available

Current User Not specified

Manufacturer Reeves Manufacturing, Inc.
30 East 9th Street
Frederick, MD 21701
800–328–5563 (Tel)
301–698–1596 (Tel)
301–698–1599 (Fax)

Source http://www.reevesmfg.com

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Hypochlorite decontamination solutions

Capacity/Throughput Dispenses 0.02 lb/h to 1.2 lb/h of decontaminant; decontaminates 6 personnel

Set-up Time Less than 10 min

Physical Parameters

Size Not specified

Weight Not specified

Power Requirements Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Ideal for all environments
Environmental Considerations	Not specified
Resources	2 to 3 personnel
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Kit, Personal No 1 Mark 1***

ID# 61

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Personal No. 1, Mark 1 is a Decontamination Kit used by field personnel in the event of a chemical warfare attack. The kit is manufactured in the U.K. by Remploy Ltd., and is in service with the U.K. Armed Forces. The kit employs sorbent technology and is comprised of a sealed plastic bag that contains four pads filled with Fuller's Earth.

Availability Commercially available

Current User In service with the U.K. Armed Forces

Manufacturer

Remploy Ltd.
415 Edgware Rd.
Cricklewood, London NW2 6LR
Country: United Kingdom
+44–1812–350500 (Tel)
+44–1812–350501 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated G, VX, HD

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Fuller's Earth

Capacity/Throughput	Not specified
Set-up Time	Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Kit, Personal No. 2, Mark 1***

ID# 62

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Personal No. 2, Mark 1 is a Decontamination Kit used by U.K. field personnel. The Personal No. 2, Mark 1 is used to decontaminate personal equipment and employs sorbent technology. The kit is comprised of a flat polythene dispenser containing 113 g of Fuller's Earth. The kit is generally used with the Personal No. 1, Mark 1 Decontamination Kit.

Availability Commercially available

Current User In service with the U.K. Armed Forces

Manufacturer Richmond Packaging (U.K.) Ltd.
New Road
Winsford, Cheshire CW7 2 NY
Country: United Kingdom
+44–1606–557422 (Tel)
+44–1606–861063 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Decontaminating powder

Capacity/Throughput Not specified

Set-up Time	Not specified

Physical Parameters

Size	0.55 x 0.28 x 0.20 (in)
Weight	4.58 oz
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	None
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal to none
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Personal No. 1, Mark 1 Decontamination Kit
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

Hazmat Decon Shower

ID# 63

Decontamination Process

Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes

The Hazmat Decon Shower, manufactured by RMC Medical, is designed to decontaminate personnel. The Hazmat Decon Shower is made of 1 ½ in PVC tubing and is transportable in a canvas duffel bag.

Availability

Commercially available

Current User

Not specified

Manufacturer

RMC Medical, Inc.
3019 Darnell Rd.
Philadelphia, PA 19154
215–824–4100 (Tel)
215–824–1371 (Fax)

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

GB, VX, HD

BW Agents Decontaminated

All

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated

Not specified

Decontaminant Solutions

DS2

Capacity/Throughput

Dispenses 0.0066 lb to 0.0088 lb of water per minute @ 40 psi to 60 psi

Set-up Time

Several min

Physical Parameters

Size	3.58 L x 3.58 W x 7.66 H (ft)
Weight	58 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Indefinite
Transportability	Portable Decontamination Unit
Durability	Constructed of 1 1/2 in PVC tubing
Environmental Conditions	Extreme heat of sun may cause shower to flake and bend. Extreme cold may cause brittleness.
Environmental Considerations	Not specified
Resources	One person to assemble and operate.
Unit Cost	$475
Maintenance Cost	Not specified
Warranty	Manufacturer defects only

Special Requirements

Operator Skills Required	Able to read and follow directions for setup
Operator Training Required	None
Training Available	None
Manuals Available	None
Support Equipment	Water supply and standard garden hose
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Hazmat Decon Backboard***

ID# 64

Picture Not Available

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Hazmat Decon Backboard is a multipurpose backboard specially designed for spinal immobilization, patient decontamination and water, confined space, and high angle rescue.

Availability Commercially available

Current User Not specified

Manufacturer

RMC Medical, Inc.
3019 Darnell Rd.
Philadelphia, PA 19154
215–824–4100 (Tel)
215–824–1371 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions DS2

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size 6 L x 1.33 W x 0.18 H (ft)

Weight 14 lb

Power Requirements	None

Logistical Parameters

Consumables Required	None
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Apparatus, Portable, DS2, ABC-M11***

ID# 65

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The ABC-M11 is a portable decontaminating apparatus used to decontaminate exterior equipment (i.e., military vehicles, crew-served weapons). The system is currently in service with the U.S. Army and Israeli Armed Forces. The equipment has a filled nitrogen pressure cartridge. However, before use, the container must be filled with DS2 decontaminating agent. The M11 functions by removal of the seal-retaining pin. After removing the pin, the handle is lifted to puncture the pressure can, dispersing the DS2. The ABC-M11 has an optimum range of about 2 m and can cover approximately 42 m^2. There are three models currently available, the M11, the M11 Stretch, and the M11 Super Stretch. The three models differ only by container volume, the M11 has a filled volume of 1.26 L, the M11 Stretch has a filled volume of 1.5 L and the M11 Super Stretch has a filled volume of 2.66 L. This system is also available with the M11 A/G dry sorbent dispenser. The M11 A/G sprays the AMBERGARDTM XE-555 powder.

Availability Commercially available

Current User In service with the U.S. Army and Israel Armed Forces

Manufacturer

Slate Enterprises, Inc.
2923 Saturn Street
Unit C
Brea, CA 92821
714–985–0117 (Tel)
714–985–9956 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated None

BW Agents Decontaminated None

High Hazard TIMs Decontaminated	Not specified
Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Decontaminates 449 ft^2
Set-up Time	Not specified

Physical Parameters

Size	5.4 D x 22.4 H (in)
Weight	7.52 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	-25.06 °F to 120.2 °F (operating temperature)
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***M13 Portable Decontaminating Apparatus (DAP)***

ID# 66

Decontamination Process Physical (removes contaminant), chemical (neutralizes contaminant), or Thermal (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	No

Application Notes The M13 Portable DAP is a portable system used to decontaminate exterior equipment (i.e., wheeled and track vehicles, crew-served weapons larger than 60 caliber (0.60 in/15 mm), towed artillery). The M13 is manufactured by All-Bann Enterprises, Inc., and is currently in service with the U.S. Army. This equipment employs chemical technology and can be either vehicle-mounted or man-portable. The M13 is comprised of a disposable container filled with 14 L of DS2 decontaminating agent (or can be replaced with any other decontaminating agent), an accessory container holder, a manual in-line pump, one to two wand sections, and a disposable synthetic filament polypropylene brush. The accessory container provides storage for all M13 components. The specifications associated with the M13 DAP include a volume of 14 L, a filled weight of 24.5 kg, and an empty weight of 10.9 kg.

Availability Commercially available

Current User In service with the U.S. Army

Manufacturer Slate Enterprises, Inc.
2923 Saturn Street
Unit C
Brea, CA 92821
714–985–0117 (Tel)
714–985–9956 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated G agents, VX, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated	Not specified
Low Hazard TIMs Decontaminated	Not specified
Decontaminant Solutions	Not specified
Capacity/Throughput	Approximately 1198 ft^2
Set-up Time	Not specified

Physical Parameters

Size	14 L x 6.6 W x 18.7 H (in)
Weight	24 lb
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	-25.06 °F to 120.2 °F
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name

NBC6F Water Purification Unit (WPU)

ID# 67

Decontamination Process

Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	Yes	Yes

Application Notes

The NBC6F is a decontamination unit used to purify contaminated drinking water. The NBC6F is capable of treating 2.2 m^3/h of NBC contaminated water.

Availability

Commercially available

Current User

Not specified

Manufacturer

Stella-Meta
Laversoke Mill
Whitchurch, Hampshire, United Kingdom RG287NR
+44–1256–895959 (Tel)
+44–1256–892074 (Fax)
email: pcims@compuserve.com

Source

Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated

Not specified

BW Agents Decontaminated

Not specified

High Hazard TIMs Decontaminated

Not specified

Medium Hazard TIMs Decontaminated

Not specified

Low Hazard TIMs Decontaminated

Not specified

Decontaminant Solutions

Not specified

Capacity/Throughput

Decontaminates 24 ft^2 of contaminated water per hour

Set-up Time

Not specified

Physical Parameters

Size	13.12 L x 8.20 W x 7.87 H (ft)
Weight	7260 lb
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Mobile Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Kit No. 2***

ID# 68

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The Decontamination Kit No. 2 is used to decontaminate personal equipment and can be used in conjunction with the M281 Skin Decontamination Kit for emergency decontamination. The Decontamination Kit No. 2 employs sorbent technology and utilizes a 15 g squeeze bottle to dispense AMBERGARD XE-555 decontaminant. The kit is able to decontaminate all known liquid chemical agents.

Availability Commercially available

Current User Not specified

Manufacturer Tradeways Ltd.
184 Duke of Gloucester Street
Annapolis, MD 21401
410–295–0813 (Tel)
410–295–0821 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated GB, V, HD

BW Agents Decontaminated All

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Water

Capacity/Throughput Decontaminates 738 ft^2

Set-up Time	Not specified

Physical Parameters

Size	3.72 L x 2.2 W x 0.1 H (in)
Weight	0.7 oz
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	None
Shelf Life	Not specified
Transportability	Man-Portable Decontamination Unit
Durability	Not specified
Environmental Conditions	-59.8 °F to 159.8 °F (storage temperature)
Environmental Considerations	Not specified
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	None
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name ***Decontamination Kit, Individual Equipment: M295***

ID# 69

Decontamination Process Physical (removes contaminant) and Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes The M295 Individual Equipment Decontamination Kit is used to decontaminate personnel equipment. The M295 Kit employs sorbent technology and utilizes AMBERGARD XE-555 (decontaminant) in four wipedown mitts that are made of non-woven polyester material with a polyethylene film backing.

Availability Commercially available

Current User In service with the U.S. Armed Forces

Manufacturer Truetech
680 Elton Avenue
Riverhead, NY 11901
516–727–8600 (Tel)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size	9 L x 5.4 W x 1.9 H (in)
Weight	8 oz
Power Requirements	None

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	None
Shelf Life	Not specified
Transportability	Mobile Decontamination Unit
Durability	Not specified
Environmental Conditions	Not specified
Environmental Considerations	Not specified
Resources	One person
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Minimal
Operator Training Required	Minimal
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

General

Equipment Name *TVI Quick-E WMD Decon Shower Shelter*

ID# 70

Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes Not specified

Availability Commercially available

Current User Not specified

Manufacturer

TVI Corporation
7100 Holladay Tyler Road
Suite 300
Glenn Dale, MD 20769
301–352–8800 (Tel)
301–352–8818 (Fax)

Source TVI Corporation

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Water

Capacity/Throughput Not specified

Set-up Time 1 min

Physical Parameters

Size Varies

Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	10 yr
Transportability	Shelters are easily transported.
Durability	Shelters are extremely rugged; corrosion resistant
Environmental Conditions	Shelters withstand extreme temperatures, strong winds, and heavy snow loads.
Environmental Considerations	Shelters have replaceable liners, ground cloth, and fitted floor basin to control wastewater.
Resources	2 person crew required
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Not specified
Applicable Regulations	Not specified

General

Equipment Name *TVI Quik-Kleen Mass Decontamination System*

ID# 71

Decontamination Process Physical (removes contaminant) and/or Chemical (neutralizes contaminant)

Applications

Personnel	Equipment	Infrastructure
Yes	No	No

Application Notes This system is designed to provide immediate decontamination capability at remote sites by a staff of four. The rugged shelter assures reliable and protected space for decontamination in cold or adverse weather.

Availability Commercially available

Current User Not specified

Manufacturer

TVI Corporation
7100 Holladay Tyler Road
Suite 300
Glenn Dale, MD 20769
301–352–8800 (Tel)
301–352–8818 (Fax)

Source TVI Corporation

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput Not specified

Set-up Time Not specified

Physical Parameters

Size	Not specified
Weight	Not specified
Power Requirements	Not specified

Logistical Parameters

Consumables Required	Decontaminant
Maintenance Repairs Required	Not specified
Shelf Life	10 yr
Transportability	Shelters are easily transported.
Durability	Shelters are extremely rugged and corrosion resistant.
Environmental Conditions	Shelters withstand extreme temperatures, strong winds, and heavy snow loads.
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

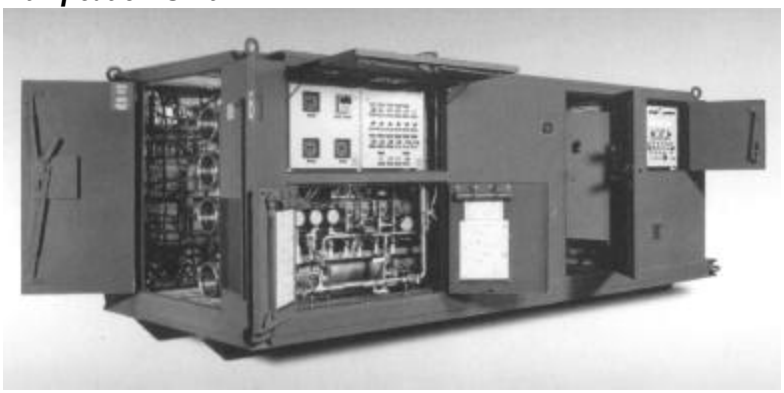
Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	HEPA filtration units
Testing Information	Not specified
Applicable Regulations	Not specified

General

Equipment Name ***Zenon Advanced Double Pass Reverse Osmosis Water Purification Unit***

ID# 72



Decontamination Process Physical (removes contaminant)

Applications

Personnel	Equipment	Infrastructure
No	No	Yes

Application Notes The Zenon Advanced Double Pass Reverse Osmosis Water Purification Unit (ADROWPU) is designed to purify water that has been contaminated with NBC agents. The ADROWPU utilizes a double pass reverse osmosis process in order to remove contamination. The process employs pressure to separate dissolved solutes and suspended substances from water.

Availability Commercially available

Current User In service in Canadian and Taiwanese Armed Forces

Manufacturer Zenon Environmental Systems, Inc.
845 Harrington Court
Burlington, Canada L7N 3P3
905–639–6320 (Tel)
905–639–1812 (Fax)

Source Wide Area Decon: CB Decontamination Technologies, Equipment, and Projects, 22 March 1999 (U.S. Joint Service Material Group)

Operational Parameters

CW Agents Decontaminated Not specified

BW Agents Decontaminated Not specified

High Hazard TIMs Decontaminated Not specified

Medium Hazard TIMs Decontaminated Not specified

Low Hazard TIMs Decontaminated Not specified

Decontaminant Solutions Not specified

Capacity/Throughput Purifies 84700 L/d of fresh water, 58950 L/d of brackish water, and 52390 L/d of seawater

Set-up Time Not specified

Physical Parameters

Size	18.0 L x 6.89 W x 5.57 H (ft)
Weight	140800 lb
Power Requirements	40 kW diesel generator

Logistical Parameters

Consumables Required	Not specified
Maintenance Repairs Required	Not specified
Shelf Life	Not specified
Transportability	Not specified
Durability	Not specified
Environmental Conditions	-40 °F to 104 °F (operating temperature)
Environmental Considerations	Not specified
Resources	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified

Special Requirements

Operator Skills Required	Not specified
Operator Training Required	Not specified
Training Available	Not specified
Manuals Available	Not specified
Support Equipment	Not specified
Testing Information	Information not available
Applicable Regulations	Not specified

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