



Chemical Emergencies Overview

The CDC has a key role in protecting the public's health in an emergency involving the release of a chemical that could harm people's health. This document provides information to help people be prepared to protect themselves during and after such an event.

What chemical emergencies are

A chemical emergency occurs when a hazardous chemical has been released and the release has the potential for harming people's health. Chemical releases can be unintentional, as in the case of an industrial accident, or intentional, as in the case of a terrorist attack.

Where hazardous chemicals come from

Some chemicals that are hazardous have been developed by military organizations for use in warfare. Examples are nerve agents such as sarin and VX, mustards such as sulfur mustards and nitrogen mustards, and choking agents such as phosgene. It might be possible for terrorists to get these chemical warfare agents and use them to harm people.

Many hazardous chemicals are used in industry (for example, chlorine, ammonia, and benzene). Others are found in nature (for example, poisonous plants). Some could be made from everyday items such as household cleaners. These types of hazardous chemicals also could be obtained and used to harm people, or they could be accidentally released.

Types and categories of hazardous chemicals

Scientists often categorize hazardous chemicals by the type of chemical or by the effects a chemical would have on people exposed to it. The categories/types used by the Centers for Disease Control and Prevention are as follows:

- **Biotoxins**—poisons that come from plants or animals (see www.bt.cdc.gov/agent/agentlistchem-category.asp#biotoxins)
- **Blister agents/vesicants**—chemicals that severely blister the eyes, respiratory tract, and skin on contact (see www.bt.cdc.gov/agent/vesicants)
- **Blood agents**—poisons that affect the body by being absorbed into the blood (see www.bt.cdc.gov/agent/agentlistchem-category.asp#blood)
- **Caustics (acids)**—chemicals that burn or corrode people's skin, eyes, and mucus membranes (lining of the nose, mouth, throat, and lungs) on contact (see www.bt.cdc.gov/agent/agentlistchem-category.asp#acids)
- **Choking/lung/pulmonary agents**—chemicals that cause severe irritation or swelling of the respiratory tract (lining of the nose and throat, lungs) (see www.bt.cdc.gov/agent/agentlistchem-category.asp#choking)

Chemical Emergencies Overview

(continued from previous page)

- **Incapacitating agents**—drugs that make people unable to think clearly or that cause an altered state of consciousness (possibly unconsciousness) (see www.bt.cdc.gov/agent/agentlistchem-category.asp#incapacitating)
- **Long-acting anticoagulants**—poisons that prevent blood from clotting properly, which can lead to uncontrolled bleeding (see www.bt.cdc.gov/agent/agentlistchem-category.asp#anticoagulant)
- **Metals**—agents that consist of metallic poisons (see www.bt.cdc.gov/agent/agentlistchem-category.asp#metals)
- **Nerve agents**—highly poisonous chemicals that work by preventing the nervous system from working properly (see www.bt.cdc.gov/agent/agentlistchem-category.asp#nerve)
- **Organic solvents**—agents that damage the tissues of living things by dissolving fats and oils (see www.bt.cdc.gov/agent/agentlistchem-category.asp#organicsolvents)
- **Riot control agents/tear gas**—highly irritating agents normally used by law enforcement for crowd control or by individuals for protection (for example, mace) (see www.bt.cdc.gov/agent/agentlistchem-category.asp#riotcontrol)
- **Toxic alcohols**—poisonous alcohols that can damage the heart, kidneys, and nervous system (see www.bt.cdc.gov/agent/agentlistchem-category.asp#toxicalcohols)
- **Vomiting agents**—chemicals that cause nausea and vomiting (see www.bt.cdc.gov/agent/agentlistchem-category.asp#vomiting)

Hazardous chemicals by name (A-Z list)

If you know the name of a chemical but aren't sure what category it would be in, you can look for the chemical by name on the "A–Z List of Chemical Agents" (www.bt.cdc.gov/agent/agentlistchem.asp) on the CDC Emergency Preparedness and Response website.

Protecting yourself if you don't know what the chemical is

You could protect yourself during a chemical emergency, even if you didn't know yet what chemical had been released. For general information on protecting yourself, read the fact sheets on evacuation (www.bt.cdc.gov/planning/evacuationfacts.asp), sheltering in place (www.bt.cdc.gov/planning/shelteringfacts.asp), and personal cleaning and disposal of contaminated clothing (www.bt.cdc.gov/planning/personalcleaningfacts.asp).

Basic information on chemical emergencies

Basic chemical emergency information designed for the public can be found in the general fact sheets (www.bt.cdc.gov/chemical/genfactsheets.asp) and chemical-specific fact sheets (www.bt.cdc.gov/chemical/factsheets.asp) and in the toxicology FAQs (www.bt.cdc.gov/chemical/toxfaqs.asp) on the CDC Emergency Preparedness and Response website.

In-depth information on chemical emergencies

Chemical emergency information designed for groups such as first responders, clinicians, laboratorians, and public health practitioners can be found in the case definitions (www.bt.cdc.gov/chemical/casedef.asp), toxic syndrome descriptions (www.bt.cdc.gov/chemical/tsd.asp), toxicological profiles (www.bt.cdc.gov/chemical/toxprofiles.asp), medical management guidelines

Chemical Emergencies Overview

(continued from previous page)

(www.bt.cdc.gov/chemical/mmg.asp), emergency response cards (www.bt.cdc.gov/chemical/erc.asp), First Responders page (www.bt.cdc.gov/chemical/responders.asp), and Laboratory Information page (www.bt.cdc.gov/chemical/lab.asp).

For more information...

For more information about chemical emergencies, you can visit the following websites:

- **Centers for Disease Control and Prevention (CDC)**
 - National Center for Environmental Health (NCEH)
 - Chemicals: Health Studies Program Activities (www.cdc.gov/nceh/hsb/chemicals)
 - Chemical Weapons Elimination (www.cdc.gov/nceh/demil)
 - Childhood Lead Poisoning Prevention Program (www.cdc.gov/nceh/lead/lead.htm)
 - National Report on Human Exposure to Environmental Chemicals (www.cdc.gov/exposurereport)
 - National Institute for Occupational Safety and Health (NIOSH)
 - Chemical Agent Information (www.cdc.gov/niosh/topics/emres/chemagent.html)
 - Chemical Safety Cards (www.cdc.gov/niosh/ipcs/icstart.html)
 - NIOSH Pocket Guide to Chemical Hazards (www.cdc.gov/niosh/npg/npg.html)
- **Agency for Toxic Substances and Disease Registry (ATSDR)**
 - Fact Sheet: Hazardous Substances Emergency Events Surveillance System (www.bt.cdc.gov/surveillance/hsees.asp)
 - Hazardous Substances in the Environment (www.atsdr.cdc.gov/2p-hazardous-substances.html)
 - Medical Management Guidelines for Acute Chemical Exposures (www.atsdr.cdc.gov/mmg.html)
 - ToxFAQs (www.atsdr.cdc.gov/toxfaq.html)
- **American Association of Poison Control Centers (www.aapcc.org)**
 - 2003 Annual Report of the American Association of Poison Control Centers (www.aapcc.org/Annual%20Reports/03report/Annual%20Report%202003.pdf)
- **Environmental Protection Agency (EPA)**
 - Pollutants/Toxics (www.epa.gov/ebtpages/pollutants.html)
- **Material Safety Data Sheets (www.eh.doe.gov/chem_safety/Msds.html)**
(from the Department of Energy website)
- **National Library of Medicine**
 - Chemical Information (<http://sis.nlm.nih.gov/Chem/ChemMain.html>)
 - Household Products Database (<http://householdproducts.nlm.nih.gov>)
 - Tox Town (<http://toxtown.nlm.nih.gov>)
- **Regional poison control center (1-800-222-1222)**
- **State and local health departments (www.cdc.gov/other.htm#states)**

For more information, visit www.bt.cdc.gov/chemical, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

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Page 3 of 3