Fast Facts for Disaster Preparedness

It is important to have all the information possible about domestic preparedness, first response and chemical and biological agents. The more you know, the easier it is to be ready.

Fast Fact 1: Chemical agents come in all states (liquid, gas, solid) – however, most are liquids. Some of the original compounds used in war were gases – simply because they were readily and commercially available.

Fast Fact 2: Some Chemical agents have odors, others do not. For example, distilled sulfur mustard in odorless, while a less-pure sample would have a faint garlic smell. The nerve agents sarin and VX are odorless; the choking agent phosgene smells like freshly mowed hay, while hydrogen cyanide has an odor of bitter almonds.

Fast Fact 3: Microorganisms are specifically identified by their genus and species. Many people refer to biological agents simply as Tularemia, Anthrax and the Plague. In fact, these terms are the diseases that the microorganisms cause the disease.

Fast Fact 4: The terms vesicant and blister can be used interchangeably to categorize agents such as mustard and lewisite. A vesicant is a blister-producing agent.

Fast Fact 5: Terrorists don't need advanced chemical and biological agents to achieve their goals. As an example, several of the chemical agents originally used in World War I were widely available in general industry; examples include chlorine and phosgene. Today, these chemicals are still important industrial compounds used in the preparation of numerous products.

Biological agents and their effects explained

Disease	Biological Agent	Physiological Effects	Ti
Anthrax	Bacillus anthracis	Mild fever and fatigue, worsening to severe respiratory disorders, high fever and excessively rapid pulse rate. Death can occur within 5-12 days of exposure if left untreated. Pulmonary anthrax is fatal more than 90% of the time	1-5
Botulinum Toxin	Clostridium botulinum	Initial symptoms include extreme weakness, nausea, headaches and intestinal pain leading to respiratory paralysis that may cause death.	2-3
Plague	Yersinia pestis	Fever, headache and rapid heart rate, followed by pneumonia and hemorrhaging of the skin and mucous membranes. Untreated plague pneumonia fatalities approach 100%, but early treatment can reduce mortality to as low as 5%	2-3
Ricin	Ricinus communis (castor bean plant)	Initial symptoms include high fever, pain, cough, and shortness of breath; after several days severe dehydration and a decrease in urine/blood pressure. If death has not occurred in 3-5 days, the victim usually recovers.	Sev
Smallpox	Variola major	Sudden onset of fever, malaise, headache, sever backache and	10-

		prostration; after 2-4 days fever falls and rash appears; scabs form and fall off at the end of the fourth week.	
Tularemia	Francisella tularensis	Symptoms include fever, chills, headache and muscular pain. 30-60% mortality rate if left untreated; treated, the mortality rate is reduced by 1%	3-5

Chemical Agents Pose A Dangerous Threat

The chart below identifies many of the most common chemical agents used in chemical and biological weapons. Keep in mind that chemical agents are toxic substances that cause incapacitation or death upon exposure. This chart outlines the agents, their type, properties, physiological effects and relative rate of action. If you need more specific information or have additional questions, please call our technical support experts at 1-800-356-2501.

Chemical Agent Name	Agent Type	Physical Properties	Physiological Effects	Relativ Action
Chlorine	Choking	Pungent odor, greenish-yellow heavier than air gas.	Corrosive to eyes, skin and respiratory tract. Burning sensation followed by coughing, headache, labored breathing and nausea. Pulmonary edema.	Immedia high conc Symptom edema m hours to a
Hydrogen Cyanide	Blood	Almond odor, highly volatile gas.	If high concentration – violent convolutions after 20-30 seconds, breathing stops in one minute; cardiac failure occurs within a few minutes.	Very rapi incapacit minutes a within 15
Lewisite	Blister	Colorless, oily liquid with little odor in its pure states. Amber to geranium-like odor with amber to dark-brown color in less pure form.	Stinging pain followed by blistering. It is also a systemic poison causing pulmonary edema, diarrhea, hypotension and restlessness.	Initial pa seconds; within 12
Mustard	Blister	Possible garlic odor, medium volatility, oily liquid.	Blisters or irritation to skin, eyes and lungs.	Delayed hours)
Phosgene	Choking	Fresh cut hay odor, heavy gas.	Coughing and choking followed by chest	Immedia high conc

			tightness, nausea, tearing, vomiting and headaches. Death due to fluid accumulation in the lungs.	delayed r (several h concentra
Sarin	Nerve	Colorless/odorless, volatile liquid.	Difficulty breathing, miosis, blurred vision, headache and nausea leading to respiratory distress, convolutions and eventually death.	Rapid (w
Tabun	Nerve	Clear, odorless, tasteless liquid with a slight fruity odor	Difficulty breathing, miosis, blurred vision, headache and nausea leading to respiratory distress, convulsions and eventually death.	Rapid (w
VX	Nerve	Colorless/odorless, low volatility, oily liquid.	Difficulty breathing, miosis, blurred vision, headache and nausea leading to respiratory distress, convulsions and eventually death.	Relativel 30 minut