SULFUR MUSTARD AGENTS

Sulfur mustard (bis(2-chloroethyl) sulfide) is a chemical agent that was first used in combat by Germany during World War I. Classified as a vesicant, or blister agent, sulfur mustard is also known as mustard agent, mustard gas, Levinstein mustard or by the military designations H/HD and HT.

Agent HD is distilled sulfur mustard. Agent H contains about 20-30% impurities. HT is a mixture of 60% HD and 40% of another substance commonly called T, which lowers the freezing point and expands the effective temperature range over which HT might be used in chemical warfare.

Characteristics

In its pure liquid state, mustard agent is colorless; however, when exposed to impurities, it becomes a pale yellow to brown oily substance. Sulfur mustard sometimes smells like garlic, onions or mustard and sometimes has no odor. Mustard agent freezes at 58°F and boils at around 420°F.

Sulfur mustard agent can remain in the environment for one to two days and can retain its vesicant properties on soil for up to two weeks under average weather conditions. In very cold conditions, mustard agent can remain in the environment from weeks to months. Because it is heavier than air, sulfur mustard vapor will settle into low-lying areas.

Exposure

Effects can include:

Skin	redness and itching of the skin followed by skin blisters
Respiratory tract	runny nose, sneezing, hoarseness, sinus pain, shortness of breath and coughing
Digestive tract	abdominal pain, diarrhea, fever, nausea and vomiting
Eyes	irritation, pain and swelling in mild or moderate exposure; light sensitivity, severe pain or temporary blindness in severe exposure
Bone marrow	decreased formation of blood cells (aplastic anemia) or decreased red and white blood cells and platelets (pancytopenia), leading to weakness, bleeding and infections

Symptoms of mustard agent exposure can take from two to 24 hours to appear, and the severity of the effects depends on how much mustard a person is exposed to, how they were exposed and for how long.

Although exposure to mustard agent is usually not fatal, long-term health effects can include scarring, permanent blindness, chronic respiratory disease and increased risk for lung and respiratory cancer.

Treatment

Because there is no antidote for sulfur mustard exposure, the primary goal should be to avoid it. Immediately evacuate the area where mustard agent was released and seek higher ground.

Anyone who suspects they were exposed to mustard agent should seek medical help immediately. Remove any clothing that has mustard on it and seal it in a plastic bag, if available. Wash exposed skin with plain, clean water and flush eyes with water for five to 10 minutes. Eyes should not be bandaged but should be protected with dark glasses. If someone has ingested mustard, do not induce vomiting. Give them water or milk, if they are able to swallow.

REV: 030520

U.S. ARMY CHEMICAL MATERIALS ACTIVITY | 8435 HOADLEY ROAD, BLDG. E4585 | APG, MD 21010
RECOVERED CHEMICAL MATERIEL DIRECTORATE PUBLIC AFFAIRS OFFICE
410-417-4926 | USARMY.CMA.PAO@MAIL.MIL | HTTPS://WWW.CMA.ARMY.MIL