



South Central Public Health District

Prevent. Promote. Protect.

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Sulfur Mustard (Mustard Gas) AS A BIOTERRORISM EVENT

What is sulfur mustard?

Sulfur mustard, also known as “mustard gas” or “mustard agent,” or by the military designations H, HD, or HT, is a type of chemical warfare agent. These types of agents are called vesicants or blistering agents, because they cause blistering of the skin and mucous membranes (eyes, mouth, etc.) on contact.

Sulfur mustard sometimes smells like garlic, onions, or mustard, but sometimes it has no odor. It can be a vapor, an oily-textured liquid, or a solid. In appearance, sulfur mustard can range from clear to yellow or brown when it is in liquid or solid form.

How is a person exposed to sulfur mustard?

If sulfur mustard is released into the air as a vapor, people can be exposed through skin contact, eye contact, or breathing. If sulfur mustard is released into water, drinking the contaminated water or getting it on their skin can expose people. Coming into contact with liquid sulfur mustard can also expose people. Sulfur mustard can last in the environment under average conditions from 1 to 2 days, and from weeks to months under very cold conditions. It is important to realize that mustard gas has a cumulative effect and breaks down slowly in the body, so if repeated exposures occur, the mustard gas can build up inside a person’s body.

How does sulfur mustard affect the body?

Adverse health effects caused by sulfur mustard depend on the amount a person is exposed to, the route of exposure, and the length of time a person is exposed. Sulfur mustard is a powerful irritant and blistering agent that damages the skin, eyes, and respiratory (breathing) tract. It also damages DNA, a vital component of cells in the body. Since sulfur mustard is heavier than air, it will tend to settle in low-lying areas.

What are the signs and symptoms of sulfur mustard exposure?

Exposure to sulfur gas is usually not fatal. A person will not know right away that they have been exposed because sulfur mustard often has no smell or a smell that might not cause alarm to a person. Once a person has been exposed, signs and symptoms usually begin appearing 2 to 48 hours after exposure. The amount of time it takes for signs and symptoms to appear is related to the amount of time a person is exposed to the chemical. Also, some people are more sensitive than others to sulfur mustard. Sulfur mustard can have the following effects on specific parts of the body:

- *Skin:* redness and itching of the skin may occur 2 to 48 hours after exposure and change eventually to yellow blistering of the skin.
- *Eyes:* irritation, pain, swelling, and tearing may occur within 3 to 12 hours after a mild to moderate exposure. A severe exposure may cause symptoms within 1 to 2 hours and may include the symptoms of a mild or moderate exposure plus light sensitivity, severe pain, or blindness (lasting up to 10 days).
- *Respiratory tract:* runny nose, sneezing, hoarseness, bloody nose, sinus pain, shortness of breath, and cough within 12 to 24 hours of mild exposure and within 2 to 4 hours of a severe exposure.
- *Digestive tract:* abdominal pain, diarrhea, fever, nausea, and vomiting.

Please Remember: Showing these signs and symptoms does not necessarily mean that a person has been exposed to sulfur mustard.

How can people protect themselves and what should they do if they have been exposed to sulfur mustard?

No antidote for sulfur mustard exists. The best thing to do is avoid exposure. Immediately leave the area where the sulfur mustard was released. Try to find higher ground, because sulfur mustard is heavier than air and it will settle in low-lying areas. If avoiding sulfur mustard exposure is not possible, rapidly remove the sulfur mustard from the body. Getting the sulfur mustard off as soon as possible after exposure is the only effective way to prevent or decrease tissue damage to the body.

Quickly remove any clothing that has liquid sulfur mustard on it. If possible, seal the clothing in a plastic bag, and then seal that bag inside a second plastic bag. Immediately wash any exposed part of the body (eyes, skin, etc.) thoroughly with plain, clean water. Eyes need to be flushed with water for 5 to 10 minutes. Do not cover eyes with bandages, but do protect them with dark glasses or goggles.

If someone has ingested sulfur mustard, do NOT induce vomiting. Give the person milk to drink. Seek medical attention right away after any exposure.

How is exposure to sulfur mustard gas treated?

The most important factor in treating sulfur mustard gas exposure is removing the sulfur mustard from the body. Exposure to sulfur mustard is treated by giving the victim supportive medical care to minimize the effects of exposure. Though no antidote exists for sulfur mustard, exposure is usually not fatal.

Where can I get more information about sulfur mustard gas?

For more information, contact South Central District Health at 734-5900 ext. 239.