

NITROGEN MUSTARDS FACT SHEET

What are nitrogen mustards?

Nitrogen mustards are blister agents that were initially produced as potential chemical warfare weapons. These blister agents come in different forms, such as an oily-textured liquid, a vapor or a solid. They can smell fishy, musty, soapy or fruity. The mustards can be clear, pale amber, or yellow colored in liquid or solid form.

How can you be exposed to nitrogen mustards?

When nitrogen mustards are released into the air as a vapor, a person can be exposed through skin contact, eye contact or inhalation. If nitrogen mustards are released into the water, touching or drinking the contaminated water can expose you. Because nitrogen mustards vapor is heavier than air, it will settle in low-lying areas.

What are the immediate symptoms?

Typically, signs and symptoms of nitrogen mustard exposure do not occur immediately. Depending on the severity of the exposure, symptoms may not occur for several hours. Nitrogen mustards can have the following effects on specific parts of the body:

- Skin: redness usually develops within several hours after exposure followed by blistering within 6 to 12 hours.
- Eyes: irritation, pain, swelling, and tearing may occur. High concentrations can cause burns and blindness.
- Respiratory tract: nose and sinus pain, cough, sore throat, and shortness of breath may occur within hours.
- Ingestion: nausea, vomiting, abdominal pain, and diarrhea.
- Brain: tremors, incoordination, and seizures are possible following a large exposure.

What are the long-term health effects of exposure to nitrogen mustards?

Exposure to nitrogen mustard liquid is more likely to produce second- and third- degree burns and later scarring than exposure to nitrogen mustard vapor.

- Extensive breathing in of the vapors can cause chronic respiratory disease.
- Extensive eye exposure can cause long-lasting eye problems.
- Nitrogen mustards may cause bone marrow suppression beginning as early as 3 to 5 days after exposure. Bone marrow suppression can cause anemia, bleeding, and increased risk for infection. If severe, these effects could lead to death.

- Delayed or repeated exposures to nitrogen mustards have caused cancer in animals. Some evidence exists that delayed or repeated exposures to nitrogen mustards causes leukemia in humans.

What should you do if you think you have been exposed to nitrogen mustards?

Since there is no antidote which exists for nitrogen mustard exposure, the best thing to do is avoid it.

If the nitrogen mustard release was indoors, get out of the building. If the release was outdoors, move away from the area of the release, stay upwind if possible, and seek higher ground. If you are near a release of nitrogen mustards, your local authorities may direct you to "*shelter in place*" or evacuate. The term "*shelter in place*" means to remain inside your home or place of work and protect yourself there.

If you think you may have been exposed, move quickly to an area where fresh air is available. Remove your clothing by cutting them off the body; if possible do not pull the clothes over your head. Quickly wash your entire body with large amounts of soap and water. If your eyes are burning or your vision is blurred, rinse them with plain water for 10 to 15 minutes. If you wear contact lenses, wash your hands after removing contaminated clothes and then remove the contacts before rinsing your eyes.

If you wear eye glasses, remove and wash them with soap and water. You can put your eyeglasses back on after you wash them. Place your contaminated clothes and contact lenses into a plastic bag and seal. Place the bag into a second plastic bag and seal.

Call 911 for medical attention and removal of the contaminated items. Do not drive yourself to the hospital as you may become very ill on your way.

Where you can get more information on nitrogen mustard?

Regional Poison Control Center (1-800-222-1222)

www.bt.cdc.gov/

www.dshs.state.tx.us

Source of information:

Centers for Disease Control and Prevention (CDC)