



Salem/Cumberland County Health Department
NITROGEN MUSTARD
(PUBLIC HANDOUT)

What is nitrogen mustard?

Nitrogen mustards are blister agents because they cause blistering of the skin and mucous membranes on contact. They come in different forms that can smell fishy, musty, soapy, or fruity. They can be from an oily-textured liquid, a vapor, or a solid. Nitrogen mustards are liquids at normal room temperature (70 degrees F). They can be clear, pale amber, or yellow colored when in liquid or solid form.

What are the symptoms of exposure to nitrogen mustard?

Usually, the 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 have the following effects on specific parts of the body:

Skin:

- Redness usually develops within several hours after exposure.
- Blistering follows and occurs within 6-12 hours.

Eyes:

- Irritation
- Pain



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- Swelling
- Tearing may occur.
- High concentrations can cause burns and blindness.

Respiratory tract: (symptoms may occur within hours)

- Nose and sinus pain
 - Cough
 - Sore throat
 - Shortness of breath
- *Fluid in the lungs is uncommon.

Digestive tract:

- Abdominal pain
- Diarrhea
- Nausea
- Vomiting

Brain:

- Tremors
- Lack of coordination
- Seizures are possible following a large exposure

Showing these symptoms does not necessarily mean that a person has been exposed to nitrogen mustards.



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Where are nitrogen mustards found and how are they used?

Nitrogen mustards were never used in warfare and are not found naturally in the environment.

How can people be exposed to nitrogen mustards?

If it is released into the air:

If nitrogen mustards are released into the air as vapor, people can be exposed through skin contact, eye contact, or breathing. Nitrogen mustard vapor will settle in low-lying areas, because it is heavier than air.

If it is released into the water:

If nitrogen mustards are released into the water, people could be exposed by drinking the contaminated water or getting it into their skin.

If it is released as a liquid:

People can be exposed directly by coming in contact with liquid nitrogen mustards.



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

- ✓ Exposure to nitrogen mustard liquid is likely to produce second and third degree burns and later scarring.
- ✓ Extensive breathing in of vapors can cause chronic respiratory disease.
- ✓ Extensive eye exposure can cause long-lasting eye problems.
- ✓ Exposure may cause bone marrow suppression beginning as early as 3-5 days after exposure, leading to anemia, bleeding, and increased risk for infection.
- ✓ Prolonged or repeated exposures to nitrogen mustards have caused cancer in animals. Some evidence exists that prolonged or repeated exposures to nitrogen mustards cause leukemia in humans.

How can people protect themselves and what should they do if they are exposed to nitrogen mustards?

- AVOID IT because there is no remedy for exposure to nitrogen mustard. Immediately leave the area where the mustard gas was released and find higher ground.



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- If you cannot avoid exposure to nitrogen mustard, quickly remove the mustard gas from the body. Getting it off as soon as possible after exposure is the only way to prevent or decrease tissue damage to the body.
- Quickly remove any clothing that has liquid mustard gas on it. If it is possible, seal the clothing in a plastic bag, and seal that bag inside a second plastic bag.
- Immediately wash any exposed part of the body thoroughly with plain, clean water. Eyes need to be flushed with water for 5-10 minutes. Do NOT cover eyes with bandages, but do protect them with dark glasses or goggles.
- If someone has ingested nitrogen mustard, do NOT induce vomiting. Give the person milk to drink.
- Seek medical attention right away. Dial 911 and explain what has happened.

How is exposure to nitrogen mustard treated?

There are no remedies at this time for exposure to nitrogen mustards. Treatment consists of removing the nitrogen mustard from the body as soon as possible and providing supportive medical care in a hospital setting.



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**Where can people get more information about nitrogen
mustards?**

- Poison Control Center: 1-800-222-1222
- Centers for Disease Control and Prevention
 - English: 1-888-246-2675
 - Spanish: 1-888-246-2857