

VX Nerve Agent

What is VX?

VX is a manufactured chemical warfare agent classified as a nerve agent. Nerve agents are the most toxic and rapidly acting of the known chemical warfare agents. They are similar to insecticides called organophosphates in terms of how they work and what kinds of harmful effects they cause. Nerve agents are much more potent than insecticides though.

Where did VX come from?

VX was originally developed in the United Kingdom in 1952 by scientists who were searching for a replacement for the insecticide DDT.

What does VX look like?

It is an odorless and tasteless oily liquid that is amber in color. It is very slow to evaporate, about as slow as motor oil. If it is heated to very high temperatures, it can be turned into small amounts of vapor (gas).

Where is VX found and how is it used?

VX is not found naturally in the environment. It is possible that VX or other nerve agents were used in chemical warfare during the Iran-Iraq War in the 1980s.

How might someone be exposed to VX?

VX is not produced in the US any longer. The general public will not be exposed to VX unless there is an accidental release from a military storage facility or a terrorist act. If VX is released into the air, people can be exposed through skin contact, eye contact, or inhalation. If VX is released into water, people can be exposed by drinking the contaminated water or by getting contaminated water on their skin. If VX contaminates food, people would be exposed by eating the food. VX breaks down slowly in the body, meaning that repeated exposures to VX and/or other nerve agents can have a cumulative effect (build up in the body).

What are the symptoms of VX poisoning?

The extent of poisoning caused by VX depends on the amount a person was exposed to, how the person was exposed, and the length of time of the exposure. Symptoms will appear within a few seconds after exposure to the vapor form of VX and within minutes to up to 18 hours after exposure to the liquid form. Symptoms of inhalation, ingestion, or skin absorption may include runny nose, watery eyes, pinpoint pupils, eye pain, blurred vision, drooling, excessive sweating, cough, chest tightness, rapid breathing, diarrhea, increased urination, confusion, drowsiness, weakness, headache, slow or fast heartbeat, abnormally high or low blood pressure, and nausea, vomiting, and/or abdominal pain. Exposure to a large dose of VX by any route may also cause loss of consciousness, convulsions, paralysis, and respiratory failure possibly leading to death.

What are the long-term health effects?

The antidotes available must be used quickly to be effective. Mild or moderately exposed people usually recover completely. Severely exposed people are not likely to survive.

How does VX work?

All the nerve agents cause their toxic effects by preventing the proper operation of the chemical that acts as the body's "off switch" for glands and muscles. Without an "off switch," the glands and muscles are constantly being stimulated. They may tire and no longer be able to sustain breathing function.

How can I protect myself from exposure to VX?

If exposure cannot be avoided, immediate decontamination and medical care as soon as possible are essential. The steps to take are:

- Leave the area where the VX was released and get to fresh air. Quickly moving to an area where fresh air is avail-

able is highly effective in reducing the possibility of death from exposure to VX vapor.

- If the VX release was outdoors, move away from the area where the VX was released. Go to the highest ground possible, because VX is heavier than air and will sink to low-lying areas.
- If the VX release was indoors, get out of the building.
- Remove any clothing that has liquid VX on it, and if possible, seal the clothing in a plastic bag. Then seal the first bag in a second plastic bag. Removing and sealing the clothing in this way will protect you and others from any chemicals that might be on your clothes.
- If helping other people remove their clothing, try to avoid touching any contaminated areas, and remove the clothing as quickly as possible.
- Rinse the eyes with plain water for 10 to 15 minutes if they are burning or vision is blurred.
- As quickly as possible, wash any liquid VX from the skin with large amounts of soap and water. Washing with soap and water will protect people from any chemicals on their bodies.
- If VX has been ingested (swallowed), do NOT induce vomiting or give fluids to drink. Seek medical attention right away.
- Stay calm. Dial 911 and explain what has happened.
- Wait for emergency personnel to arrive.

How is VX poisoning treated?

VX poisoning is treated with antidotes and supportive medical care. The most important thing is for victims to be rapidly decontaminated and get medical treatment as soon as possible.

Does VX cause cancer?

The Federal Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the Environmental Protection Agency (EPA) have not classified VX as to its ability to cause cancer in humans. Limited data in animals indicate that nerve agents are not likely to be carcinogenic.

Questions and comments about VX may be addressed to the Bureau of Emergency Preparedness and Response by calling 603-271-4496 or 800-852-3345 x4496. For further information, refer to the Centers for Disease Control and Prevention website at www.cdc.gov, the Agency for Toxic Substances and Disease Registry website at www.atsdr.cdc.gov, or the New Hampshire Department of Health and Human Services website at www.dhhs.state.nh.us.