



FACT SHEET

Facts About Sodium Azide

What sodium azide is

- Sodium azide is a rapidly acting, potentially deadly chemical that exists as an odorless white solid.
- When it is mixed with water or an acid, sodium azide changes rapidly to a toxic gas with a pungent (sharp) odor. It also changes into a toxic gas when it comes in contact with solid metals (for example, when it is poured into a drain pipe containing lead or copper).
- The odor of the gas may not be sharp enough, however, to give people sufficient warning of the danger.

Where sodium azide is found and how it is used

- Sodium azide is best known as the chemical found in automobile airbags. An electrical charge triggered by automobile impact causes sodium azide to explode and release nitrogen gas inside the airbag.
- Sodium azide is used as a chemical preservative in hospitals and laboratories. Accidents have occurred in these settings. In one case, sodium azide was poured into a drain, where it exploded and the toxic gas was inhaled (breathed in).
- Sodium azide is used in agriculture (farming) for pest control.
- Sodium azide is also used in detonators and other explosives.

How you could be exposed to sodium azide

- Following release of sodium azide into water, you could be exposed to sodium azide by drinking the contaminated water.
- Following contamination of food with sodium azide, you could be exposed to sodium azide by eating the contaminated food.
- Following release of sodium azide into the air, you could be exposed by breathing in the dust or the gas that is formed.
- Sodium azide can also enter the body and cause symptoms through skin contact.
- An explosion involving sodium azide may cause burn injury as well as expose people to the toxic gas, hydrozoic acid.
- CDC has received no reports of sodium azide exposure following automobile airbag deployment.

How sodium azide works

- The seriousness of poisoning caused by sodium azide depends on the amount, route, and length of time of exposure, as well as the age and preexisting medical condition of the person exposed.
- Breathing the gas that is formed from sodium azide causes the most harm, but ingesting (swallowing) sodium azide can be toxic as well.
- The gas formed from sodium azide is most dangerous in enclosed places where the gas will be trapped. The toxic gas quickly disperses in open spaces, making it less harmful outdoors.
- The gas formed from sodium azide is less dense (lighter) than air, so it will rise.
- Sodium azide prevents the cells of the body from using oxygen. When this happens, the cells die.

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- Sodium azide is more harmful to the heart and the brain than to other organs, because the heart and the brain use a lot of oxygen.

Immediate signs and symptoms of sodium azide exposure

- People exposed to a small amount of sodium azide by breathing it, absorbing it through their skin, or eating foods that contain it may have some or all of the following symptoms within minutes:
 - Rapid breathing
 - Restlessness
 - Dizziness
 - Weakness
 - Headache
 - Nausea and vomiting
 - Rapid heart rate
 - Red eyes (gas or dust exposure)
 - Clear drainage from the nose (gas or dust exposure)
 - Cough (gas or dust exposure)
 - Skin burns and blisters (explosion or direct skin contact)
- Exposure to a large amount of sodium azide by any route may cause these other health effects as well:
 - Convulsions
 - Low blood pressure
 - Slow heart rate
 - Loss of consciousness
 - Lung injury
 - Respiratory failure leading to death
- Showing these signs and symptoms does not necessarily mean that a person has been exposed to sodium azide.

What the long-term health effects may be

Survivors of serious sodium azide poisoning may have heart and brain damage.

How people can protect themselves and what they should do if they are exposed to sodium azide

- First, get fresh air by leaving the area where the sodium azide was released. Moving to an area with fresh air is a good way to reduce the possibility of death from exposure to sodium azide.
 - If the sodium azide release was outside, move away from the area where the sodium azide was released.
 - If the sodium azide release was indoors, get out of the building.
 - If leaving the area that was exposed to sodium azide is not an option, stay as low to the ground as possible, because sodium azide fumes rise.
 - If you are near a release of sodium azide, emergency coordinators may tell you to either evacuate the area or to “shelter in place” (www.bt.cdc.gov/planning/Shelteringfacts.asp) inside a building to avoid being exposed to the chemical. For more information on evacuation during a chemical emergency, see “Facts About Evacuation” (www.bt.cdc.gov/planning/evacuationfacts.asp). For more information on sheltering in place during a chemical emergency, see “Facts About Sheltering in Place” (www.bt.cdc.gov/planning/Shelteringfacts.asp).

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- If you think you may have been exposed to sodium azide, you should remove your clothing, rapidly wash your entire body with soap and water, and get medical care as quickly as possible.
- **Removing your clothing:**
 - Quickly take off clothing that may have sodium azide on it. Any clothing that has to be pulled over the head should be cut off the body instead of pulled over the head.
 - If you are helping other people remove their clothing, try to avoid touching any contaminated areas, and remove the clothing as quickly as possible.
- **Washing yourself:**
 - As quickly as possible, wash any sodium azide from your skin with large amounts of soap and water. Washing with soap and water will help protect people from any chemicals on their bodies.
 - If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes. If you wear contacts, remove them and put them with the contaminated clothing. Do not put the contacts back in your eyes (even if they are not disposable contacts). If you wear eyeglasses, wash them with soap and water. You can put your eyeglasses back on after you wash them.
- **Disposing of your clothes:**
 - After you have washed yourself, place your clothing inside a plastic bag. Avoid touching contaminated areas of the clothing. If you can't avoid touching contaminated areas, or you aren't sure where the contaminated areas are, wear rubber gloves or put the clothing in the bag using tongs, tool handles, sticks, or similar objects. Anything that touches the contaminated clothing should also be placed in the bag. If you wear contacts, put them in the plastic bag, too.
 - Seal the bag, and then seal that bag inside another plastic bag. Disposing of your clothing in this way will help protect you and other people from any chemicals that might be on your clothes.
 - When the local or state health department or emergency personnel arrive, tell them what you did with your clothes. The health department or emergency personnel will arrange for further disposal. Do not handle the plastic bags yourself.
 - For more information about cleaning your body and disposing of your clothes after a chemical release, see “Chemical Agents: Facts About Personal Cleaning and Disposal of Contaminated Clothing” (www.bt.cdc.gov/planning/personalcleaningfacts.asp).
 - If someone has ingested sodium azide, do not induce vomiting or give fluids to drink. Also, if you are sure the person has ingested sodium azide, do not attempt CPR. Performing CPR on someone who has ingested sodium azide could expose you to the chemical.
 - When sodium azide is ingested, it mixes with stomach acid and forms the toxic gas, hydrozoic acid. If a person who has ingested sodium azide is vomiting, isolate and stay away from the stomach contents (vomit) to avoid exposure to the toxic gas.
 - Do not pour substances containing sodium azide (such as food, water, or vomit) in the drain, because the drain can explode and cause serious harm.
- Seek medical attention right away. Dial 911 and explain what has happened.

How sodium azide poisoning is treated

Sodium azide poisoning is treated with supportive medical care in a hospital setting. No specific antidote exists for sodium azide poisoning. The most important thing is for victims to seek medical treatment as soon as

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possible.

How you can get more information about sodium azide

You can contact one of the following:

- Regional poison control center (1-800-222-1222)
- Centers for Disease Control and Prevention
 - Public Response Hotline (CDC)
 - English (888) 246-2675
 - Español (888) 246-2857
 - TTY (866) 874-2646
 - Emergency Preparedness and Response Web site (www.bt.cdc.gov/)
 - E-mail inquiries: cdcresponse@ashstd.org
 - Mail inquiries:
Public Inquiry c/o BPRP
Bioterrorism Preparedness and Response Planning
Centers for Disease Control and Prevention
Mailstop C-18
1600 Clifton Road
Atlanta, GA 30333
- Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), Pocket Guide to Chemical Hazards (www.cdc.gov/niosh/npg/npgd0560.html).

This fact sheet is based on CDC's best current information. It may be updated as new information becomes available.

Last reviewed on 05/09/03

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

For more information, visit www.bt.cdc.gov or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)

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