

# Fact Sheet

## Cyanide



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### What is Cyanide



Cyanide is a rapidly acting poison that can occur in many forms, including gases, liquids and solids. Hydrogen cyanide and cyanogens chloride occur as colorless gases, while sodium cyanide and potassium cyanide occur in solid crystal forms, (*cyanide salts*). Although cyanide is found naturally in many foods and plants and produced by many bacteria, fungi, and algae, there are no common home uses for cyanide compounds. Most cyanide in the environment results from industry or improper waste disposal.

Hydrogen cyanide gas and cyanide salts have a wide variety of uses, including electroplating, metallurgy, chemical and plastic manufacturing, photograph development, gold mining, and pest control.

### Exposure

Cyanide can enter the environment from a variety of natural and man-made processes, but exposure is usually associated with industrial processes involving cyanide, eating food and/or water containing cyanide, or breathing smoke-filled air from a fire.

- **Breathing** – Inhalation of hydrogen cyanide is a common industrial route of exposure and poses the greatest danger when exposure is within an enclosed indoor space. Since the gas evaporates and disperses quickly in open spaces, the threat is less intense outdoors. Cyanide compounds may also be inhaled from industrial emissions, car exhaust, cigarette smoke, and certain paper and plastic products when they are burned. Airborne cyanide salts, (which are usually found as a powder), can also be inhaled.
- **Drinking / Eating** – Some foods naturally contain cyanide compounds, including cassava roots, lima beans, and almonds. Exposure can also occur from drinking water that has been contaminated with a cyanide compound, which is most likely to occur with cyanide salts. People coming into contact with contaminated soils and surfaces who then eat and/or touch their hands to their mouth can also be exposed.
- **Touching** – Cyanide compounds can be absorbed through the skin when in a liquid state (or as a vapor in very high concentrations). This can occur from direct skin contact with the chemical, from bathing in or drinking contaminated water, and from handling contaminated soils, objects or water with bare hands.
- **Eye contact** – Exposure to liquid or vapor cyanide compounds can cause eye irritation and be subsequently taken up into the body, especially under conditions of high temperature and humidity. Cyanogen compounds are particularly irritating to the eyes and other moist tissues.

For Immediate assistance, call the Poison Control Center Hotline: 1-800-222-1222

### Health Effects

The degree of reaction to exposure to any chemical depends of three main factors: the amount of exposure, the route of exposure, (*breathing, touching, etc.*), and the length of time of the exposure.

Short-term exposures to low levels of cyanide via inhalation, skin absorption or ingestion can lead to the following symptoms in a matter of minutes: Rapid breathing and heart rate, restlessness, dizziness, weakness, headache, and nausea/vomiting. Moderate inhalation exposures can add confusion, anxiety, respiratory tract irritation, and

shortness of breath to the previously listed symptoms. If cyanide is ingested, there may also be a burning sensation in the mouth and throat.

Acute exposure to high concentrations of cyanide can lead to death in a matter of minutes (10 minutes). In addition to the symptoms listed above, exposure to a large amount of cyanide can lead to convulsions, abnormal blood pressure and heart rate, lung injury, shock, coma, seizures, and ultimately, death from respiratory and/or circulatory failure.

Skin and/or eye contact with cyanide can locally produce irritation and sores. Usually it does not lead to whole-body effects when exposure is limited to the eyes. The irritation of skin and mucous membranes from moderate to severe exposures leads to a redness or flushing of the skin. This type of exposure can add to overall whole-body effects in the presence of inhaled and/or ingested cyanide.

## Treatment

Treatment involves removing the exposed individual from the source of exposure, removing residual cyanide from the body and providing supportive medical care in a hospital setting. Specific antidotes are available to treat cyanide poisoning administered by a doctor or other health care professional.

- **If a person thinks they have been exposed to a cyanide-containing solution (liquid or aerosol)**, remove clothing and wash the entire body thoroughly with soap and water. Seek medical care as soon as possible. Clothing that would need to be pulled over the head should be cut off the body to avoid further contact with skin. Place this clothing in a plastic bag, seal the bag, and place inside another plastic bag. Do **not** handle the bags, call 911 and inform the dispatcher of the situation.
- **If the eyes are burning or vision is blurred**, rinse eyes with plain water immediately for 10 to 15 minutes. Seek medical care as soon as possible.
- **If a person has ingested or inhaled cyanide**, do **not** induce vomiting and do **not** give fluids to drink. Avoid contact with stomach contents if vomiting. Seek medical care as soon as possible.
- **If the skin has come into contact with liquid cyanide**, rinse the affected area(s) thoroughly with soap and water. Seek medical care as soon as possible.

## Prevention

- Under **normal** occupational conditions, wear the appropriate protective clothing and make sure that chemical hazard warning information is posted in the work area.
- Under **accidental or intentional release** conditions, leave the area where the cyanide was released. If outdoors, move **upwind** and away from the release point. If indoors, leave the building immediately. Cyanide compounds differ with regard to vapor density: some are lighter than air and rise, (like hydrogen cyanide), while some are heavier than air and sink, (like cyanogens chloride). The best response is to get to an area of open space as soon as possible to allow for dilution of the cyanide in air to occur.



**For more sources of information on this topic visit or contact:**

ST. CLAIR COUNTY HEALTH DEPARTMENT [www.scchealth.co](http://www.scchealth.co)

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH [www.michigan.gov/mdch](http://www.michigan.gov/mdch)

CENTERS FOR DISEASE CONTROL AND PREVENTION [www.cdc.gov](http://www.cdc.gov) 1-888-246-2675

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH TOXICS AND HEALTH HOTLINE: 1-800-648-6942

MICHIGAN OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (MIOSHA): 517-322-1814

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY: [www.atsdr.gov](http://www.atsdr.gov) 1-888-422-8737