

Diagnosis

Blood and urine tests can measure cyanide levels, but results may only indicate recent exposure. Bitter, almond-like breath odour may suggest exposure, but it's not always present. You may notice a change in breathing; eyes can be bloodshot and skin can turn cherry red.

If cyanide exposure is suspected, immediate treatment is recommended without waiting for test results. Every minute counts.

Treatment

Eye Contact

- Do not touch eyes if you suspect they have been exposed to cyanide.
- Flush eyes with water for at least 15 minutes.
- Seek medical attention immediately. Administer cyanokit.

Skin Contact

- Remove clothing and, using emergency shower, flush skin with water for 15 minutes or until slippery feeling is gone.
- Dispose of clothing or wash before reuse.
- Seek medical attention.

Inhalation

- Move to fresh air.
- If breathing is difficult, administer oxygen and cyanokit as soon as possible.
- Seek medical attention immediately.

Ingestion

- Do not induce vomiting.
- Loosen tight clothing.
- Seek medical attention for cyanokit to be administered.

References

- CDC - Facts About Cyanide
- SDS - Sodium Cyanide
- Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry - Public Health Statement - Cyanide

For more information, contact your local WSN Health and Safety Specialist

Download online:
workplacesafetynorth.ca/en/resource/cyanide-hazard-alert-and-information-sheet



Actionable Information

Cyanide

Information Sheet

Cyanide, also called sodium cyanide, potassium cyanide (as CN), calcium cyanide, or hydrogen cyanide, is widely used in the mining industry. While effective and economical, its use, transportation, and disposal can pose significant risks to the environment and human health.

Extreme care is needed during ore processing to prevent exposure to workers. A comprehensive risk assessment is required to ensure everyone is protected.

Solutions with cyanide must be monitored carefully to prevent dangerous cyanide gas forming. Disposing of cyanide waste has additional challenges. When exposed to air, it can turn into harmful compounds that cause environmental, and health problems.

Definition

Cyanide is a fast-acting, potentially very hazardous chemical that comes in different forms: solid (when shipping), liquid (sodium, calcium, or potassium cyanide), or colorless gas (hydrogen cyanide or cyanogen chloride). This highly toxic and corrosive chemical agent has a specific occupational exposure limit.



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Sources

During gold and silver extraction, cyanide is added to create alkaline water. These high concentrations of cyanide in a solution mixed with ore, help in the extraction of gold and silver.

Solutions can emit cyanide gas, posing risks to health. In open air, pure cyanide transforms into compounds like nitrate, causing environmental and health issues. Cyanide in solutions can form long-lasting complexes with metals like cobalt in groundwater during disposal.

Health Effects

Exposure to cyanide, regardless of the route, can be deadly. Severity and survival time depends on the form (gas or salts) and exposure routes: inhalation, ingestion, skin absorption, and eye contact.

Potential Acute Health Effects

- Hazardous in skin, eye, ingestion, and inhalation contact.
- Causes tissue damage, blindness, inflammation, and blistering.
- Severe exposure can lead to lung damage, unconsciousness, or death.

Potential Chronic Health Effects

- Long-term neuropsychiatric symptoms
- Toxic to skin, eyes, and the central nervous system, including the brain.
- Repeated exposure can damage target organs and lead to respiratory issues.

Signs and Symptoms of Exposure

Exposure through breathing, skin absorption, or ingestion can cause agitation, confusion, asphyxia, weakness, headache, nausea, vomiting, and respiratory changes, seizures, and coma.

Common symptoms include bloodshot eyes and bright red skin.

Small Amounts

Symptoms within minutes include dizziness, headache, nausea, vomiting, rapid breathing, rapid heart rate, restlessness, and weakness.

Large Amounts

May cause convulsions, loss of consciousness, low blood pressure, lung injury, respiratory failure leading to death, and a slow heart rate.

Affected Organs

Eyes, skin, cardiovascular system, central nervous system (brain), thyroid, and circulatory system (blood).

Controls for Cyanide Exposure

Hazards from cyanide can be controlled by completing a risk assessment and putting safety measures in place to minimize handling and industrial exposure.

Eliminating spillage during transfer and system failures within mine sites is crucial.

Personal Protective Equipment

Respirator:

Use proper respiratory equipment for the concentration of cyanide dust or gas that may be in the air. During emergency response use a self-contained breathing apparatus (SCBA) against cyanide gas.

Skin Protection:

- Chemical-resistant gloves; outer and inner layer.
- Hooded chemical-resistant suit protects against cyanide (coveralls, clothing under the suit).
- Chemical-resistant boots with a steel toe and shank; chemical-resistant boot covers optional in some disposable coveralls

Eye Protection:

Full-face respirator with elasticized hood over facepiece provides protection for eyes, nose, mouth, and face.