

## CYANIDE

**Agent information:**

Cyanide is an industrial chemical agent historically used in war because of its ability to cause mass casualties. Cyanide can be a colorless gas such as hydrogen cyanide or cyanogen chloride, or a solid crystal form such as sodium cyanide or potassium cyanide. It has a “bitter almond” odor which is not detected by all persons and is very volatile (quick to form a gas) at room temperature. In enclosed spaces, cyanides are rapidly lethal at high concentrations.

**Transmission:**

Primary route is inhalation or ingestion. Dermal and ocular exposures can also occur.

**Signs and symptoms:**

Signs and symptoms vary, depending on the route and level of exposure. Signs of moderate exposure are increased respiratory and heart rates, metabolic acidosis, venous blood-O<sub>2</sub> level above normal, hypotension, and “pink” skin color. Symptoms include giddiness, palpitations, dizziness, nausea, vomiting, headache, eye irritation, increase in rate and depth of breathing (hyperventilation), and drowsiness. Signs of high exposure are the above signs, plus coma, convulsions, and cessation of respiration and heartbeat. Symptoms include immediate loss of consciousness, convulsions, and loss of vital signs within one to 15 minutes.

**Protective measures:**

Persons whose clothing or skin is contaminated with cyanide-containing solutions can secondarily contaminate response personnel by direct contact or through off-gassing vapor. Removing patient clothing will eliminate any trapped gases, reducing risk of secondary contamination. Personal Protective Equipment (PPE) includes hooded Powered-Air Purifying Respirator, chemical-resistant suit, gloves, and boots.

**Emergency Medical Services and Preparedness Section**  
**24/7 Emergency Contact Number: 1-888-295-5156**  
**Contact Number: 302-223-2999**

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- Evaluation:** Whole blood cyanide concentration level tests are indicated to assess cyanide exposure. These can confirm exposure, but they may not be available in time to guide acute treatment. Patient should be treated immediately and not wait for laboratory results.
- Prophylaxis:** Appropriate PPE to avoid secondary contamination.
- Treatment:** Supportive medical care. Clinicians should treat potentially exposed persons and not wait for laboratory confirmation. Antidotes should be given to unconscious victims as soon as possible after exposure.
- There are currently two cyanide antidotal kits approved by the U.S. Food and Drug Administration (FDA). The standard cyanide antidotal kit includes amyl nitrite perles and intravenous infusions of sodium nitrite and sodium thiosulfate. Another antidote, the cyanokit, employs intravenous infusion of hydroxocobalamin.
- Reporting:** Report suspect cases immediately to the Division of Public Health: 1-888-295-5156 (24/7 coverage).
- For more information:** Visit the Centers for Disease Control and Prevention website: <https://emergency.cdc.gov/>.