

Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Cyanides / Hydrocyanic acid

CAS No: 74-90-8

GHS symbols:



GHS06

Acute toxicity



GHS07

Acute toxicity



GHS08

Health hazard

Signal word: Danger

Hazard statement:

H300+H310+H330 Danger to life if swallowed, in contact with skin or if inhaled.

Brief information

- Before the first aider approaches a patient, who has been or is exposed to cyanides, they must ensure that there is no danger to themselves from cyanides.
- There is no danger from contact with patients who have only been exposed to cyanide vapors. However, a patient who is covered in liquids containing cyanide, or whose clothing is contaminated, may endanger other people through direct contact or through evaporating cyanide.
- Cyanide poisoning can be fatal within minutes. If relevant exposure to cyanide is suspected and there are clinical signs of severe oxygen deficiency, cyanide poisoning should be assumed even if there is no blue-red discoloration of the skin and mucous membranes.
- If cyanide poisoning is suspected, immediate administration of pure oxygen is crucial. If the patient shows signs of poisoning, antidotes (especially 4-DMAP and sodium thiosulphate) should be administered immediately.

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1. Information about the substance

Cyanides (CN)

Cyanides are salts of hydrogen cyanide, hydrocyanic acid (e.g. potassium cyanide and similar substances). Their physical and chemical properties depend on the specific compound. The odor of cyanide compounds does not provide sufficient warning of their dangerous effects.

Alkaline cyanides are used in gold and silver ore extraction, metal surface treatment, electroplating, the manufacture of dyes and pigments, and as pesticides.

2. Exposition

2.1. Inhalation

All respirable cyanide compounds are rapidly absorbed through the lungs.

2.2. Skin/eye contact

Cyanides are readily absorbed through the skin and mucous membranes; symptoms may be delayed. Eye and skin irritation may occur.

2.3. Ingestion

Most cyanide compounds are absorbed immediately in the gastrointestinal tract. Alkali salts are generally only toxic after ingestion.

3. Acute health effects

Initial symptoms may include flushing, rapid pulse, shortness of breath, headache and dizziness. This may eventually lead to central nervous system excitation, impaired consciousness or even unconsciousness, respiratory paralysis, seizures, slow pulse, drop in blood pressure and death. A burning sensation in the mouth and throat and reddened eyes have been observed.

If cyanide poisoning is suspected due to inhalation, the first treatment is to administer pure oxygen. Patients with significant symptoms require treatment with antidotes and are admitted to hospital after receiving care from the emergency doctor/ambulance service.

Low concentration can cause headaches, dizziness, weakness, nausea and vomiting. Exposure to higher concentrations can lead to severe breathing difficulties, irregular heartbeat, impaired consciousness or even unconsciousness, seizures and ultimately death. In general, the more severe the exposure, the more pronounced the symptoms.

A single, short-term exposure to low concentrations of cyanide vapors, from which the affected person recovers quickly, does not normally cause delayed or lasting damage to health. Permanent damage to the heart or brain has been reported following significant exposure.

4. Measures

4.1. Self-protection of first aiders

If there is a suspicion that the area the helper must enter contains cyanide, a self-contained breathing apparatus and a chemical protection suit must be worn. Contaminated equipment should not be used. There is no danger from contact with patients who have only been exposed to cyanide vapors. A patient who is wet with liquids containing cyanide, or whose clothing is wet with such liquids, may endanger other people through direct contact or through evaporating cyanide.

4.2. Rescue

Patients should be removed from the danger zone immediately. If they are unable to walk unaided, they should be removed from the danger zone quickly using appropriate means, taking care to protect themselves. The "A, B, C procedure" has absolute priority.

- A) Clear the airways** (check for blockages caused by the tongue or foreign objects)
B) Ventilation (check the patient's breathing, if necessary, begin ventilation with adequate self-protection, e.g. breathing mask)
C) Circulation (begin resuscitation for any person who does not respond to verbal commands and is not breathing normally)

Speed is crucial. If the patient shows signs of poisoning, the antidotes should be obtained and prepared for use, if available. Treatment should be carried out at the same time as cleaning.

4.3. Cleaning

Patients suspected of having been in contact with solutions containing cyanides require special cleaning measures.

If possible, patients should assist with their own decontamination. If liquid cyanide has been exposed and clothing is contaminated, it must be removed and securely wrapped, taking care to protect yourself. Rinse affected skin and hair with water for at least 15 minutes. Protect eyes while rinsing. Continue other important emergency measures during this time.

If the eyes have been exposed to cyanide or if there is eye irritation, rinse with water or neutral saline solution for 15 minutes. Remove any contact lenses, if possible, without causing additional danger to the eye. Continue other important first aid measures during this time.

Do not induce vomiting after swallowing.

4.4. Further measures

Anyone who may have been exposed to cyanide should seek medical attention immediately.

Patients who are conscious and able to swallow should receive 50 g of activated charcoal (or 1 g/kg body weight for children weighing up to 50 kg) within two hours of exposure. Repeated administration of activated charcoal is possible at any time to complete decontamination if there are signs or suspicion of ongoing absorption.

For multiple doses, start with the single-dose amount mentioned above, followed by the same dose every four hours or half the dose every two hours. Avoid inhaling the product.

4.5. Instructions for further rules of conduct

Consult your family doctor or the emergency department of the nearest hospital if any abnormalities or symptoms occur within the next 24 hours, in particular:

- Breathing difficulties or shortness of breath
- Confusion or weakness
- Pain or tightness in the chest

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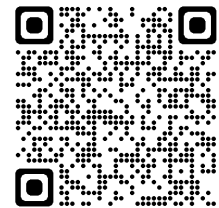
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