**BASF Chemical Emergency Medical Guidelines**

# Cyanides (CN); Hydrocyanic acid A 1

## Information and recommendations for first responders

- **Before approaching the patient, the first responder must make sure that he does not risk exposing himself to cyanides.**
- **Patients exposed only to cyanide vapor do not pose a significant risk of secondary contamination. Patients whose clothing is contaminated with cyanide-containing liquids may secondarily contaminate rescue and medical personnel by direct contact or through evaporation of cyanides.**
- **Cyanide poisoning may lead to death within minutes. Given reason to believe that cyanide-containing material is present, severe hypoxic signs in the absence of cyanosis suggest the diagnosis.**
- **In case of suspected cyanide poisoning immediate administration of 100% oxygen is crucial. If the patient is symptomatic obtain the cyanide antidotes and prepare them for use.**

**1. Substance information**

Cyanide (CN)
Cyanides are the salts of hydrocyanic acid e.g. Cycanogen potassium and similar). Their physical and chemical properties are dependent on the nature of the chemical in question. The odor of cyanide compounds does not provide adequate warning of hazardous concentrations.
Alkaline cyanide salts are used for gold and silver ore extraction, metal heat treating, electroplating as well as for the production of dyes, pigments, and as fumigants and insecticides.
Cyanide can also be released by hepatic metabolism from various nitrile compounds that are used in the production of plastics or occur naturally in plants.

**2. Routes of exposure**

*Inhalation*

**All respirable forms of cyanide are readily absorbed via the lung.**

*Skin/eye contact*

Cyanide is absorbed through skin or mucous membranes, although the onset of toxic symptoms may be delayed. Exposure to cyanides may result in skin and eye irritation.

*Ingestion*

Most cyanides are immediately absorbed from the gastrointestinal tract. Alkali salts of cyanide are toxic only when ingested.

**3. Acute health effects**

Initially the patient may experience flushing, tachycardia, shortness of breath, headache, and dizziness. This then may progress to agitation, stupor, coma, apnea, generalized seizures, bradycardia, hypotension and death.
Burning sensation of the mouth and throat, and equally redness of the eyes have occurred.

**4. Actions**

*Rescuer self-protection*

**If the zone which has to be entered by the rescuer is suspected of containing cyanide, pressure-demand, self-contained breathing apparatus and chemical-protective clothing shall be worn; do not use equipment that is contaminated itself.**
Patients whose clothing is contaminated with cyanide-containing liquids may secondarily contaminate rescue and medical personnel by direct contact or through evaporation of cyanides.

| | |
|---|---|
| *Patient recovery* | Patients should be removed from the contaminated zone immediately. Patients who are unable to walk may be removed on backboards or stretchers; if these are not available, carefully remove/transport patients with appropriate action to a safe zone, taking into account your self-protection.<br>Immediate priorities must follow the ”A, B, C’s” of resuscitation:<br>**A) Airway** (make sure the airway is not blocked by the tongue or by a foreign body)<br>**B) Breathing** (check to see if the patient is breathing, provide ventilations with use of appropriate barrier devices, e.g. with a pocket face mask, if breathing is absent)<br>**C) Circulation** (start CPR in any unresponsive person with absent or abnormal breathing)<br>**Speed is critical.** For symptomatic patients, provide treatment - 100% oxygen - and prepare specific antidotes. **Treatment should be given simultaneously with decontamination procedures.** |
| *Decontamination* | All patients with suspected exposure to cyanide-containing solutions require decontamination.<br>Patients who are able and cooperative may assist with their own decontamination. Rapidly remove and double-bag contaminated clothing while flushing exposed skin and hair with plain water for 5 minutes. Protect eyes during flushing of skin and hair.<br>Irrigate exposed or irritated eyes with plain water or saline for 5 minutes. Continue eye irrigation during other basic care or transport. Remove contact lenses if present and easily removable without additional trauma to the eye.<br>In case of ingestion do not induce emesis. If possible, immediately administer a slurry of activated charcoal. |
| *Further actions* | **Each possibly exposed person should seek immediate medical advice and treatment.** |



**BASF** SE
Corporate Health Management
Carl-Bosch-Straße 38
67056 Ludwigshafen
Germany

**BASF** Corporation
Medical Department
100 Campus Drive, M/S F 221
Florham Park, NJ 07932
USA