



Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Hydrogen chloride

CAS No: 7647-01-0

GHS symbols:



GHS05
Corrosive



GHS06
Acute toxicity

Signal word: Danger

Hazard statements:

- | | |
|------|--|
| H314 | Causes severe skin burns and serious eye damage. |
| H318 | Causes serious eye damage |
| H331 | Toxic if inhaled. |

Overview

- There is no danger from contact with patients who have only been exposed to hydrogen chloride gas. A patient who is wet with liquid hydrogen chloride (boiling point -85°C) or whose clothing is contaminated with it may endanger other people through direct contact or through hydrogen chloride gas emissions.
- Hydrogen chloride is highly corrosive to moist skin, the eyes and the upper respiratory tract and causes eye irritation, coughing, chest pain and breathing difficulties. Laryngeal spasms and signs of fluid accumulation in the lungs (shortness of breath, blue-red discoloration of the skin and mucous membranes, sputum and coughing) may occur.
- There is no known specific antidote. Treatment depends on the extent of exposure and the symptoms.

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1. Information about the substance

Hydrogen chloride (HCl), CAS 7647-01-0

Synonyms: anhydrous hydrogen chloride, hydrogen chloride gas

At room temperature, hydrogen chloride is a colorless gas with a pungent or acrid odor. Under pressure or at temperatures below -85°C , it is a clear liquid. When the gas is released, large quantities of white mist quickly form due to the humidity in the air. The vapors that form are corrosive. It mixes completely with water to form hydrochloric acid. Hydrochloric acid is usually colorless but may also be yellowish in color due to impurities. Hydrochloric acid is used in numerous chemical processes and manufacturing procedures.

2. Exposition

2.1. Inhalation

Inhalation is the main route of exposure to hydrogen chloride. The smell of hydrogen chloride and its irritating effect on the upper respiratory tract serve as a clear warning of dangerous concentrations. As hydrogen chloride is heavier than air, there is a risk of suffocation in poorly ventilated, low-lying or enclosed spaces.

2.2. Skin/eye contact

Direct exposure of wet or damp skin or eyes to liquid hydrogen chloride or liquefied gas causes severe chemical burns. Only small amounts are absorbed through the skin.

2.3. Ingestion

Ingestion of hydrogen chloride is unlikely as it is a gas at room temperature. Aqueous solutions can cause severe chemical burns.

3. Acute health effects

Hydrogen chloride usually causes throat irritation and coughing. At high concentrations, it can quickly lead to breathing difficulties with chest pain, shortness of breath, laryngospasm and fluid accumulation in the lungs (shortness of breath, cyanosis, sputum, coughing).

The symptoms may increase over time. Massive exposure can lead to respiratory and cardiovascular failure.

Concentrated hydrochloric acid causes severe burns to the skin and mucous membranes, which can lead to scarring. Low gas concentrations or HCl mist can cause pain, redness, inflammation and blistering. Exposure to liquefied HCl gas can cause frostbite.

Low gas concentrations cause burning, redness, tearing and eyelid closure. Exposure to high concentrations or HCl solutions can cause clouding of the surface of the eye and subsequent permanent damage to the eye.

In most cases, exposure to hydrogen chloride occurs through inhalation of the gas. Small amounts of hydrogen chloride gas cause irritation of the eyes, nose and throat, with tearing of the eyes, coughing and a feeling of suffocation. Higher concentrations can cause severe breathing difficulties and ultimately lead to chemically induced lung damage and death.

A single, short-term exposure to low concentrations of hydrogen chloride gas, from which the affected person recovers quickly, does not normally cause delayed or lasting damage to health. Some people who have inhaled large amounts of hydrogen chloride have developed persistent respiratory problems and were subsequently more susceptible to infectious diseases of the lungs.

4. Measures

4.1. Self-protection of first aiders

If there is a suspicion that the area the helper must enter contains hydrogen chloride, a self-contained breathing apparatus and a chemical protection suit must be worn. Contaminated equipment should not be used further.

There is no danger from contact with patients who have only been exposed to hydrogen chloride gas. A patient who is wet with liquid hydrogen chloride or whose clothing is wet with liquid hydrogen chloride may endanger other people through direct contact or through hydrogen chloride gas emissions.

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)

4.3. Cleaning

Patients who have only been exposed to hydrogen chloride gas and show no signs of skin or eye irritation do not require any special cleaning measures, unlike all others.

If possible, patients should assist with their own decontamination. If liquid hydrogen chloride has been exposed to and clothing is contaminated, it must be removed and securely wrapped.

Rinse affected skin and hair with water for at least 15 minutes. Protect eyes while rinsing. Continue other important emergency measures in the meantime.

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

4.4. Further measures

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

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:

- Coughing, wheezing or whistling breath
- Breathing difficulties or shortness of breath
- Increased pain or abnormalities in the affected skin areas or eyes
- Pain or tightness in the chest

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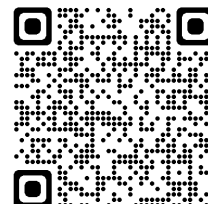
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BASF has taken every possible care to ensure that the information presented in this document is accurate and up to date, but does not claim that this document comprehensively covers all possible situations in this regard. This document is intended as an additional source of information for doctors in hospitals and is designed to assist in the assessment of the condition and treatment of patients exposed to hydrogen chloride. However, it does not replace the professional assessment of the respective situation by physicians in hospitals and must be interpreted in accordance with legal regulations and provisions as well as specific information available about the respective patient.