

Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Chlorine

CAS: 7782-50-5

GHS symbols:



GHS03
Oxidising
substances



GHS04
Gases under
pressure



GHS06
Acute toxicity



GHS09
Environment

Signal word: Danger

Hazard statements:

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H330 Fatal if inhaled.
- H335 May cause respiratory irritation.

Overview

- Before the first aider approaches a patient, who has been or is exposed to chlorine, they must ensure that there is no danger to themselves from chlorine.
- There is no danger from contact with patients who have only been exposed to chlorine gas. However, a patient who is wet with liquid chlorine (boiling point -34°C) or whose clothing is wet with liquid chlorine may endanger other people through direct contact or through chlorine gas emissions.
- Chlorine has a strong corrosive effect on moist skin, the eyes and the upper respiratory tract, causing 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, 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

Chlorine (Cl₂), CAS 7782-50-5

Synonyms: Chlorine gas

At room temperature, chlorine is a green-yellow, non-flammable gas with a pungent or acrid odor; under pressure or at temperatures below -34°C, it is a clear, amber-colored liquid. It is a strong oxidizing agent and is explosive or can form explosive mixtures with many other substances. Chlorine is only slightly soluble in water, but on contact with moisture it forms hypochlorous acid (HOCl) and hydrochloric acid (HCl); the unstable hypochlorous acid decomposes rapidly to form oxygen radicals. Water increases its oxidative and corrosive effect. Chlorine is an important starting material in the production of many chemicals, such as in the synthesis of metal chlorides, chlorinated solvents, pesticides, plastics and synthetic rubber. It is used as a bleaching agent in the paper and textile industries and can be released from household products containing hypochlorite through the action of acids.

2. Exposition

2.1. Inhalation

Inhalation is the main route of exposure to chlorine. The smell of chlorine has a clear warning effect. However, even low concentrations can pose a hazard. As chlorine is heavier than air, there is a risk of suffocation in poorly ventilated, low-lying or enclosed spaces.

2.2. Skin/eye contact

Exposure of wet or damp skin or eyes to chlorine gas causes severe chemical burns with ulceration and scabbing.

2.3. Ingestion

Ingestion of chlorine is unlikely as it is a gas at room temperature.

3. Acute health effects

Chlorine gas causes irritation of the eyes and upper respiratory tract (throat irritation, coughing). At high concentrations, it can quickly lead to breathing difficulties with chest pain, shortness of breath, laryngeal spasms and fluid accumulation in the lungs. The symptoms may increase over time. In the event of massive exposure, respiratory and cardiovascular failure is possible.

If the skin is wet or damp, contact with gaseous chlorine can cause skin irritation or redness. Contact with pressurized liquid chlorine may result in frostbite.

Low gas concentrations can cause eye irritation with burning, redness, tearing and eyelid closure, while contact with liquid chlorine can cause clouding of the eye surface and subsequent permanent damage.

4. Measures

4.1. Self-protection for first aiders

If there is suspicion that the area the helper must enter contains chlorine, 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 chlorine gas. A patient who is wet with liquid chlorine or chlorine-containing solvents, or whose clothing is wet with these substances, may endanger other people through direct contact or through chlorine 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 suitable 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 gaseous chlorine and show no signs of skin or eye irritation do not require any special cleaning measures, unlike all others. If possible, patients should assist in cleaning themselves. If liquid chlorine or chlorine-containing solvents have been exposed and clothing has been contaminated, it must be removed and securely wrapped. Ensure that affected areas of skin and hair are rinsed with water for at least 15 minutes. Continue other important first aid measures during this time. Protect eyes while rinsing. Ensure that eyes are rinsed with water or neutral saline solution for at least 15 minutes in the event of chlorine exposure. Remove any contact lenses, if possible, without causing further injury to the eye. Continue other important first aid measures during this time.

4.4. Further measures

Anyone who may have been exposed to chlorine 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 immediately if any of the following symptoms occur within 24 hours:

- Coughing, wheezing or whistling breath
- Difficulty breathing, shortness of breath or breathlessness
- Increased pain, redness/burning or abnormalities in the affected skin areas or eyes
- Pain or tightness in the chest

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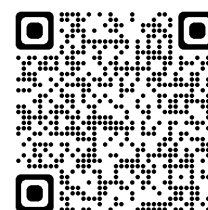
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BASF has taken every possible care to ensure that the information presented in this document is accurate and up to date but does not claim that this document comprehensively covers all possible situations in this regard. This document is intended as 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 chlorine. 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 patients.