

Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Sulfuric acid

CAS No.: 7664-93-9

GHS symbols:



GHS05
Corrosive



GHS06
Acute toxicity

Signal word: Danger

Hazard statements:

H314 Causes severe skin burns and serious eye damage.

Brief information

- A patient who is covered in liquid sulfuric acid or whose clothing is covered in liquid sulfuric acid may endanger other people through direct contact or through sulfuric acid vapors. There is no danger from contact with patients who have only been exposed to sulfuric acid vapors.
- Sulfuric acid has a strong corrosive effect on all tissues. Exposure to the eyes can cause severe burns and permanent damage to the eye. Skin contact can cause severe burns, which may occur with a delay. Vapors irritate the skin, eyes, nose, throat and respiratory tract, causing coughing, chest pain and breathing difficulties. Laryngeal spasm and fluid accumulation in the lungs (shortness of breath, blue 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

Sulfuric acid (H₂SO₄), CAS 7664-93-9

Synonyms: vitriol oil, battery acid

Sulfuric acid is a clear, colorless, non-flammable, oily liquid with a pungent odor when hot. Due to its strong hygroscopic effect, impurities can cause brownish discoloration. Sulfuric acid is widely used in the production of various basic chemicals, fertilizers, explosives, synthetic fibers, paints, medicines, detergents, adhesives and paper. It is used as an electrolyte in car batteries and is used in leather, fur and wool processing, plastics manufacturing, oil and natural gas extraction, uranium processing, metal surface cleaning, food preparation and as a laboratory reagent.

2. Exposition

2.1. Inhalation

Inhalation of mists/vapors is a possible route of exposure. The smell of sulfuric acid and its irritating effects on the upper respiratory tract serve as a clear warning of dangerous concentrations.

2.2. Skin/eye contact

Exposure to sulfuric acid occurs mainly through direct contact with the skin and eyes. Skin and eye contact causes severe burns, which may also occur with a delay.

2.3. Ingestion

Ingestion of sulfuric acid causes severe burns to the mucous membranes in the throat and esophagus.

3. Acute health effects

In most cases, exposure to sulfuric acid occurs when the liquid comes into contact with the skin or eyes. Skin and eye contact causes severe burns, which may occur with a delay. Typical symptoms include watery eyes, nasal irritation, throat irritation and coughing. Prolonged exposure can cause severe breathing difficulties and ultimately lead to chemical lung damage and death.

Sulfuric acid vapors usually cause throat irritation and coughing. This can quickly lead to breathing difficulties with chest pain, shortness of breath, laryngospasm and fluid accumulation in the lungs (shortness of breath, blue discoloration of the skin and mucous membranes, sputum, coughing). The symptoms may increase over several hours. Exposure to sulfuric acid can lead to respiratory failure.

Direct exposure to liquid sulfuric acid causes severe burns to the skin and mucous membranes, which can lead to scarring. Low vapor concentrations or mist can cause pain, redness, inflammation and blistering. Direct exposure to liquid sulfuric acid causes severe burns and subsequent permanent damage to the eyes. Low vapor concentrations and mist cause burning, redness, tearing and eyelid closure.

A single, short-term exposure, from which the affected person recovers quickly, does not normally result in delayed or lasting damage to health. Persistent respiratory problems and increased susceptibility to lung infections have been reported in people who have inhaled a significant amount of sulfuric acid.

4. Measures

4.1. Self-protection of first responders

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

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

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 yourself. The "A, B, C procedure" has absolute priority in this case.

- 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 sulfuric acid vapors 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 cleaning. If liquid sulfuric acid has come into contact with clothing, it must be removed immediately and securely wrapped.

If the eyes have been exposed to sulfuric acid 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 with other important first aid measures during this time.

Rinse affected skin and hair with water for at least 15 minutes. Protect eyes while rinsing. Continue other important first aid measures during this time.

4.4. Further measures

Anyone who may have been exposed to sulfuric acid 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
- Difficulty breathing 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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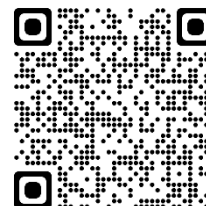
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