

Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Methanol

CAS No.: 67-56-1

GHS symbols:



GHS06

Acute toxicity



GHS08

Health hazard

Signal word: Danger

Hazard statements:

- | | |
|----------------|---|
| H319 | Causes serious eye irritation. |
| H336 | May cause drowsiness or dizziness. |
| H360 | May damage fertility or the unborn child. |
| H370 | Causes damage to organs. |
| H301+H311+H331 | Toxic if swallowed, in contact with skin or if inhaled. |

Overview

- There is no danger from contact with patients who have been exposed to methanol or have swallowed methanol.
- Ingesting as little as 10ml of methanol can cause severe poisoning and permanent blindness and inhibition of the central nervous system. A dose of approximately 1ml of methanol per kg of body weight can be fatal.
- Methanol can cause mild irritation after contact with the eyes, skin and upper respiratory tract, which can manifest itself in redness of the eyes and tearing, coughing, and degreasing and inflammation of the skin.
- Inhalation of methanol at concentrations above 1000ppm and prolonged or extensive skin contact can result in severe systemic toxic effects.
- Methanol poisoning can be treated by administering ethanol. If the patient is conscious after ingesting methanol, an adult should immediately consume alcoholic beverages, e.g. 150ml of whisky or brandy.

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1. Information about the substance

Methanol (CH₃OH), CAS 67-56-1

Synonyms: methyl alcohol, carbinol

At room temperature, methanol is a clear, colorless, volatile and flammable liquid (boiling point 65°C). Its mild alcoholic odor can be detected at concentrations of 5ppm to 100ppm. It is miscible with water.

Methanol is used as a solvent, antifreeze, fuel and as an intermediate product in the manufacture of formaldehyde, acetic acid and methyl esters.

2. Exposition

2.1. Inhalation

Inhalation is an important method of exposure when working with methanol. The odor and irritant effect of methanol provide a clear warning of dangerous concentrations. As methanol is heavier than air, there is a risk of suffocation in poorly ventilated, low-lying or enclosed spaces.

2.2. Skin/eye contact

Methanol can cause irritations to the skin and eyes. Methanol is very easily absorbed through intact skin.

2.3. Ingestion

Ingestion of methanol causes severe systemic poisoning. After ingesting methanol, a patient may initially be symptom-free for a period before severe signs of poisoning appear.

3. Acute health effects

Brief skin or eye contact with methanol or inhalation of a methanol concentration of less than 1000 ppm usually results in only mild irritation.

More pronounced exposure or ingestion of a few milliliters of methanol can cause nausea, vomiting, abdominal pain and symptoms of intoxication like those of alcohol poisoning. Inhalation of methanol in concentrations above 1000ppm or prolonged or extensive skin exposure can result in similar effects.

A symptom-free period of 8 to 36 hours usually follows before severe symptoms appear: headache, dizziness, vomiting, severe abdominal pain, visual disturbances that can lead to blindness. Respiratory disorders, unconsciousness and even coma with respiratory failure and ultimately death. Methanol poisoning can be treated by administering 4-methylpyrazole or ethanol, which inhibits the formation of toxic breakdown products from methanol.

A single, short-term exposure to low concentrations of methanol, from which the affected person recovers quickly, does not normally cause delayed or lasting damage to health. Immediate treatment usually prevents permanent damage, even in cases of severe poisoning. However, if visual disturbances are already present, permanent damage is likely. Permanent brain damage has been reported following significant exposure to methanol.

4. Measures

4.1. Self-protection of first aiders

Patients who have been exposed to methanol do not pose a danger. 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

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" then 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 methanol 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 cleansing. If liquid methanol has been exposed 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. If the eyes have been exposed to methanol or if there is eye irritation, rinse with water or neutral saline solution for 15 minutes. Remove any contact lenses, if possible, without additional risk to the eye. Other important emergency measures must be continued during this time.

Anyone who may have been exposed to a methanol concentration of over 1000ppm or who has had methanol in their eyes or on their skin for a prolonged period or over a large area should seek medical attention immediately.

4.4. Further measures

Do not induce vomiting. After exposure to methanol, anyone should seek medical attention immediately. Adults who are fully conscious should immediately consume approximately 0.7g of ethanol/kg of body weight in the form of alcoholic beverages, e.g. by drinking 150ml of whisky or brandy.

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:

- Visual disturbances: blurred vision, flashing lights, foggy vision
- Abdominal pain
- Increasing pain in the eyes or skin
- Headaches, dizziness, vomiting

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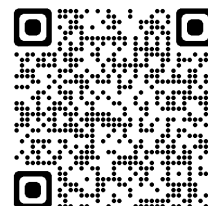
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