

Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

Tetrahydrofuran

CAS No.: 109-99-9

GHS symbols:



GHS07

Acute toxicity



GHS08

Health hazard

Signal word: Danger

Hazard statements:

H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Overview

- There is no danger from contact with patients who have only been exposed to tetrahydrofuran vapors. A patient who is wet with liquid tetrahydrofuran (boiling point 66°C) or whose clothing is wet with it may endanger other people through direct contact or through evaporating tetrahydrofuran.
- Tetrahydrofuran irritates the skin, eyes and respiratory tract and can cause headaches, nausea, dizziness, weakness, confusion and loss of consciousness. Disorders of the central and peripheral nervous system have been observed.
- 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

Tetrahydrofuran (C₄H₈O), CAS 109-99-9

Synonyms: cyclotetramethylene oxide, THF, tetramethylene oxide

Tetrahydrofuran is a clear, colorless liquid at room temperature (boiling point 66°C). The vapor and liquid are flammable. Tetrahydrofuran has an acetone- or ether-like odor. The odor threshold is 2 to 7.4ppm. It is miscible with organic solvents. Combustion can produce explosive peroxide and carbon monoxide.

Tetrahydrofuran is an organic solvent for natural and synthetic polymers and resins. It is used in the manufacture of lacquers, adhesives, paints and inks, and in textile production.

2. Exposition

2.1. Inhalation

Exposure to tetrahydrofuran occurs mainly through inhalation. Tetrahydrofuran is rapidly absorbed through the lungs.

2.2. Skin/eye contact

Tetrahydrofuran is absorbed through the skin and can lead to general symptoms of poisoning.

2.3. Ingestion

Tetrahydrofuran is absorbed through the gastrointestinal tract. However, ingestion is rare in the workplace. If swallowed, it can enter the respiratory tract.

3. Acute health effects

Tetrahydrofuran can cause general symptoms of poisoning such as headache, nausea, dizziness, weakness, confusion and loss of consciousness. Exposure to high concentrations may cause signs of upper respiratory tract irritation, followed by oxygen deficiency, muscle weakness, cardiac arrhythmia, coma and respiratory arrest. Central nervous system disorders and liver enzyme changes may occur.

Tetrahydrofuran may irritate the upper respiratory tract. Local exposure to liquid tetrahydrofuran may cause skin irritation. Local exposure of the eyes to liquid tetrahydrofuran or high vapor concentrations may cause irritation with redness, burning, tearing or spasmodic eyelid closure.

A single, short-term exposure to tetrahydrofuran, from which the affected person recovers quickly, does not normally cause delayed or lasting damage to health. Disorders of the central nervous system, liver and kidneys may occur after high and prolonged exposure. After inhaling relevant amounts of tetrahydrofuran, permanent respiratory disorders and increased susceptibility to lung infections have been reported.

4. Measures

4.1. Self-protection of first aiders

If there is a suspicion that the area the helper must enter contains tetrahydrofuran, 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 tetrahydrofuran vapors. A patient who is wet with liquid tetrahydrofuran or whose clothing is wet with liquid tetrahydrofuran may endanger others

people through direct contact or through evaporating tetrahydrofuran.

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 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 tetrahydrofuran 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 tetrahydrofuran has been exposed and clothing is contaminated, it must be removed and securely wrapped.

If the eyes have been exposed to tetrahydrofuran 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. Other important emergency measures must be continued 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.

If swallowed, rinse mouth immediately and then give 200 to 300ml of water. Avoid vomiting; this may cause irritation of the esophagus and tetrahydrofuran to enter the lungs.

4.4. Further measures

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

4.5. Instructions for further rules of conduct

Call 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
- Headache, nausea, dizziness

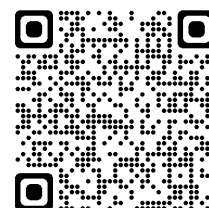
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BASF has taken every possible care to ensure that the information presented in this document is accurate and up to date but does not claim that this document comprehensively covers all possible situations in this regard. This document is intended as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