BASF Chemical Emergency Medical Guidelines

Tetrahydrofuran (C_4H_8O) A 1

Information and recommendations for first responders

- **Patients exposed only to tetrahydrofuran vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid Tetrahydrofuran (boiling point 66°C, 150.8°F, respectively) can secondarily contaminate rescue and medical personnel by direct contact or evaporation of tetrahydrofuran.**
- **Tetrahydrofuran is irritating (defatting) when it comes in contact with the skin and eyes and causes headache, nausea, vertigo, dizziness, weakness, disorientation, and unconsciousness. Central and peripheral neuropathy has been noted.**
- **There is no antidote to be administered to counteract the effects of tetrahydrofuran. Treatment consists of supportive measures.**

1. Substance information

Tetrahydrofuran (C_4H_8O), CAS 109-99-9

Synonymes: Cyclotetramethylene oxide, THF, tetramethylene oxide

Tetrahydrofuran is, at room temperature, a clear, colorless liquid with a boiling point of 66°C, 150.8°F, respectively. Both vapor and liquid are potential fire and explosion hazards. Tetrahydrofuran has an acetone or ether-like odor and an odor threshold of 2 – 7.4 ppm. It is miscible with water and common organic solvents. Tetrahydrofuran may decompose into explosive peroxides and carbon monoxide.

Tetrahydrofuran is an organic solvent for natural and synthetic polymers and resins. It is used in the manufacture of lacquers, glues, paint, and ink and wetting and dispersing agents in textile processing.

2. Routes of exposure

Inhalation — **Most exposures occur by inhalation.** Tetrahydrofuran is readily absorbed by the lungs.

Skin/eye contact — It is absorbed through the skin causing systemic effects.

Ingestion — Tetrahydrofuran is absorbed by the gut. Ingestion is uncommon in occupational settings but may be aspirated.

3. Acute health effects

Systemic — **Tetrahydrofuran causes headache, nausea, vertigo, dizziness, weakness, disorientation, and unconsciousness.** Acute exposure to high concentrations may produce signs of upper respiratory irritation, followed asphyxia, muscular weakness, cardiac arrhythmia, coma and death from respiratory paralysis. Central and peripheral neuropathy and alterations in liver enzymes have been noted after long-term exposure.

Respiratory — Tetrahydrofuran may irritate the nose and throat.

Dermal — Irritation of the skin may be caused by direct contact to liquid tetrahydrofuran.

Ocular — Eye contact to vapor or liquid tetrahydrofuran may cause irritation with burning discomfort, spasmodic blinking or involuntary closing of the eyelids, redness, and tearing

4. Actions

Rescuer self-protection	**If the zone which has to be entered by the rescuer is suspected of containing tetrahydrofuran, pressure-demand, self-contained breathing apparatus and chemical-protective clothing shall be worn; do not use equipment that is contaminated itself.** Patients whose clothing or skin is contaminated with liquid tetrahydrofuran may secondarily contaminate rescue and medical personnel by direct contact.
Patient recovery	Patients should be removed from the contaminated zone immediately. Patients who are unable to walk may be removed on backboards or stretchers; if these are not available, carefully remove/transport patients with appropriate action to a safe zone, taking into account your self-protection. Immediate priorities must follow the "**A, B, C's**" of resuscitation: **A) Airway** (make sure the airway is not blocked by the tongue or by a foreign body) **B) Breathing** (check to see if the patient is breathing, provide ventilation with use of appropriate barrier devices, e.g. with a pocket face mask, if breathing is absent) **C) Circulation** (start CPR in any unresponsive person with absent or abnormal breathing)
Decontamination	Patients exposed to tetrahydrofuran require decontamination. Patients who are able and cooperative may assist with their own decontamination. If the exposure involved tetrahydrofuran and if clothing is contaminated, remove and double-bag the clothing. **Irrigate exposed or irritated eyes with plain water or saline for at least 20 minutes**. Remove contact lenses if present and easily removable without additional trauma to the eye. Continue other basic care during flushing. **Flush exposed skin and hair with plain water for at least 15 minutes**. Protect eyes during flushing of skin and hair. Continue other basic care during flushing. Following ingestion rinse mouth and then drink 200-300 ml of water. Emesis is not recommended due to the potential for esophageal irritation and aspiration.
Further actions	**Each potentially exposed person should seek medical advice and treatment.**

BASF SE
Corporate Health Management
Carl-Bosch-Straße 38
67056 Ludwigshafen
Germany

BASF Corporation
Medical Department
100 Park Avenue
Florham Park, NJ 07932
USA