
Information and recommendations for first responders

- Patients exposed only to toluene vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid Toluene (boiling point 110.6°C, 231.1°F, respectively) can secondarily contaminate rescue and medical personnel by direct contact or evaporation of toluene.
 - Toluene 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 toluene. Treatment consists of supportive measures.
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1. Substance information

Toluene (C₆H₅-CH₃), CAS 108-88-3

Synonymes: methyl benzene, phenyl methane

Toluene is, at room temperature, a clear, colorless liquid with a boiling point of 110.6°C, 231.1°F, respectively. Both vapor and liquid are potential fire and explosion hazards. Toluene has a aromatic odor and an odor threshold of 2.5 ppm. It is slightly soluble in water, and miscible with common organic solvents. Carbon monoxide may be released in a toluene fire.

Toluene is an organic solvent with a high evaporation rate primarily produced through refining of crude oil. It is used in the production of benzene, trinitrotoluene, nylon, plastics and polyurethanes.

2. Routes of exposure

Inhalation

Most exposures occur by inhalation. Toluene is readily absorbed by the lungs.

Skin/eye contact

It is absorbed through the skin causing systemic effects.

Ingestion

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

3. Acute health effects

Systemic

Toluene 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

Toluene may irritate the nose and throat.

Dermal

Irritation of the skin may be caused by direct contact to liquid toluene.

Ocular

Eye contact to vapor or liquid toluene 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 toluene, 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 toluene 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 toluene require decontamination.

Patients who are able and cooperative may assist with their own decontamination. If the exposure involved toluene 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 afterwards administer charcoal as a slurry (240 ml water/30 g charcoal). Emesis not recommended due to the potential for esophageal irritation and aspiration.

Further actions

Each potentially exposed person should seek medical advice and treatment.

<p>In this document BASF has made a diligent effort to ensure the accuracy and currency of the information presented but makes no claim that the document comprehensively addresses all possible situations related to this topic. This document is intended as an additional resource for first responders in assessing the condition and managing the treatment of patients exposed to toluene. It is not, however, a substitute for the judgement of a first responder and must be interpreted in the light of specific information regarding the patient available to such a first responder and in conjunction with other sources of authority.</p>
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