
Information and recommendations for first responders

- Patients exposed only to epichlorohydrin vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid epichlorohydrin can secondarily contaminate rescue and medical personnel by direct contact or through evaporation of epichlorohydrin.
 - Epichlorohydrin can produce eye, skin, and respiratory tract irritation. Signs of accumulation of fluid in the lungs (shortness of breath, cyanosis, expectoration, cough) may evolve 12 hours or more after exposure. Skin reactions may be delayed and may heal very slowly.
 - Inhalation and skin contact may result in systemic absorption resulting in headache, nausea, vomiting, abdominal pain, lung, liver, and kidney damage.
 - There is no antidote to be administered to counteract the effects of epichlorohydrin. Treatment consists of supportive measures.
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1. Substance information

Epichlorohydrin (C₃H₅ClO), CAS 106-89-8
Synonyms: 1-chloro-2,3-epoxypropane, 3-chloro-1,2-epoxypropane, 1-chloropropenoxide, 3-chloropropenoxide.
Epichlorohydrin is a colorless and flammable liquid at room temperature (boiling point 116°C, 241°F, respectively) with an odor comparable to chloroform. However, dangerous exposures may occur at levels too low to smell. Epichlorohydrin vapor may form an explosive mixture with air and is heavier than air; exposure will be higher in enclosed, poorly ventilated, or low-lying areas. It is slightly soluble in water.
Epichlorohydrin is used in the manufacture of epoxy and phenoxy resins, glycerol, surface active agents, pharmaceuticals, insecticides, coatings, adhesives, solvents, and other chemicals. It is used as a solvent in the rubber and paper industry.

2. Routes of exposure

Inhalation

Inhalation is a major route of epichlorohydrin exposure.

Epichlorohydrin's odor is not a reliable indicator of any level of exposure and provides insufficient warning of hazardous exposure.

Skin/eye contact

Epichlorohydrin vapor or liquids may be absorbed through the skin and eyes; however, direct contact with epichlorohydrin vapor or concentrated solutions may cause severe chemical burns.

Ingestion

Involuntary ingestion of epichlorohydrin is unlikely.

3. Acute health effects

Epichlorohydrin exposure may produce local irritation of the nose, throat, and lungs. At high doses, it may cause accumulation of fluid in the lungs up to 12 hours or more after exposure resulting in shortness of breath, cyanosis, expectoration, and cough.

Skin contact with epichlorohydrin vapor or liquid may cause irritation with redness of the skin, blistering, itching, and pain. **Skin reactions may be delayed up to 12 hours or more after exposure and may heal very slowly.** High vapor concentrations or splashes of concentrated solutions can cause tearing and redness of the eye, and corneal injury.

Both inhalation and skin contact may lead to systemic absorption causing severe headache, nausea, vomiting, abdominal pain, and lung, liver and kidney injury.

4. Actions

Rescuer self-protection

If the zone which has to be entered by the rescuer is suspected of containing epichlorohydrin, pressure-demand, self-contained breathing apparatus and chemical-protective clothing shall be worn; do not use equipment that is contaminated itself.

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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 ventilations 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 only to epichlorohydrin vapor who have no evidence of skin or eye irritation do not need decontamination. All others require decontamination.

Patients who are able and cooperative may assist with their own decontamination. If the exposure involved liquid epichlorohydrin and if clothing is contaminated, remove and double-bag the clothing.

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.

Irrigate exposed or irritated eyes with plain water or saline for at least 15 minutes. Remove contact lenses if present and easily removable without additional trauma to the eye. Continue other basic care during flushing.

Further actions

Each potentially exposed person should seek immediate medical advice and treatment.

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 epichlorohydrin. 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.

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