
Information and recommendations for first responders

- Patients exposed only to dimethylformamide vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid dimethylformamide (boiling point 153°C, respectively 307°F) can secondarily contaminate rescue and medical personnel by direct contact or evaporation of dimethylformamide.
 - Dimethylformamide is irritating when it comes in contact with the eyes, skin, and throat and causes headache, nausea, vertigo, dizziness, weakness, disorientation, and hypotension. Liver toxicity and alcohol intolerance have been noted.
 - There is no antidote to be administered to counteract the effects of dimethylformamide. Treatment consists of supportive measures.
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1. Substance information

Dimethylformamide ((CH₃)₂N-CHO), CAS 68-12-2

Synonyms: DMF, formyldimethylamine

Dimethylformamide is, at room temperature, a colorless to very slightly yellow liquid with a faint amine or "fishy" odor. Though stable at normal temperatures and storage conditions, dimethylformamide may react violently with halogens, alkyl halides, strong oxidizers, and polyhalogenated compounds in the presence of iron. Decomposition products include toxic gases and vapors such as dimethylamine and carbon monoxide. It is water-soluble.

Dimethylformamide is an organic solvent with a slow evaporation rate used for polar polymers and resins, adhesives, cleaners, zinc electroplating, protective coatings, inks, film, paint removers, and in selective gas absorption. It is used in Orlon® and acrylic fiber spinning, synthetic leather, polyurethanes, wire enamels, chemical manufacturing and pharmaceutical production.

2. Routes of exposure

Inhalation

Exposures may occur by inhalation. Dimethylformamide is readily absorbed by the lungs.

Skin/eye contact

Most exposures occur by direct contact. It is readily absorbed through the skin, causing systemic effects.

Ingestion

Dimethylformamide is readily absorbed by the gut. However, ingestion is uncommon in occupational settings.

3. Acute health effects

Systemic

Dimethylformamide causes headache, nausea, vertigo, dizziness, weakness, disorientation, and hypotension. Liver toxicity with jaundice and altered liver enzymes and alcohol intolerance has been noted. Dimethylformamide poisoning may cause unconsciousness, respiratory and cardiovascular failure.

Respiratory

Irritation of the throat may be caused by dimethylformamide.

Skin

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

Eye

Eye contact to vapor or liquid dimethylformamide causes 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 dimethylformamide, 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 dimethylformamide 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 facemask, if breathing is absent)
- C) Circulation** (start CPR in any unresponsive person with absent or abnormal breathing)

Decontamination

Patients exposed to dimethylformamide require decontamination.

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

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.

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.

Further actions

Each potentially exposed person should seek 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 dimethylformamide. 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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