



# Chemical Emergency Medical Guideline

Information and recommendations for first responders and patients

## Dimethylformamide

CAS No.: 68-12-2

GHS symbols:



**GHS06**  
Acute toxicity



**GHS08**  
Health hazard

**Signal word: Danger**

**Hazard statements:**

H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H370	Causes damage to organs.
H302+H312	Harmful if swallowed or in contact with skin.
H360D	May damage the unborn child.

### Overview

- There is no danger from contact with patients who have only been exposed to dimethylformamide vapors. A patient who is wet with liquid dimethylformamide (boiling point 150°C) or whose clothing is wet with it may endanger other people through direct contact or through evaporating dimethylformamide.
- Dimethylformamide irritates the skin, eyes and respiratory tract and can cause headaches, nausea, dizziness, weakness, confusion and a drop in blood pressure. It can cause liver damage and alcohol intolerance reactions.
- 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

Dimethylformamide ((CH<sub>3</sub>)<sub>2</sub>N-CHO), CAS 68-12-2

Synonyms: DMF, formic acid dimethylamide

At room temperature (boiling point 153°C), dimethylformamide is a clear to slightly yellowish liquid with a slight fishy odor and is soluble in water. Dimethylformamide is stable under normal storage conditions, but reacts violently with halogens, alkyl halides, strong oxidizing agents and polyhalogenated compounds in the presence of iron. Toxic decomposition products include dimethylamine and carbon monoxide.

Dimethylformamide is an organic solvent with a low vapor pressure and is used in the manufacture of polar polymers and resins, adhesives and cleaners, in galvanizing and surface treatment, in paint and paint removers, films and in gas absorption. It is used in the manufacture of Orlon<sup>®</sup> and acrylic fibers, synthetic leather, polyurethanes, cable sheathing and in the production of chemicals and pharmaceuticals.

## 2. Exposition

### 2.1. Inhalation

Dimethylformamide can be inhaled and absorbed through the lungs.

### 2.2. Skin/eye contact

Exposure to dimethylformamide occurs mainly through contact with the skin. Dimethylformamide is readily absorbed through the skin and can lead to general symptoms of poisoning.

### 2.3. Ingestion

Dimethylformamide is readily absorbed through the gastrointestinal tract. However, ingestion is rare in the workplace.

## 3. Acute health effects

In most cases, dimethylformamide poses a hazard through skin contact or inhalation of vapors. High concentrations and liquid dimethylformamide are readily absorbed through the skin. In addition to irritation of the skin, eyes and respiratory tract, it can lead to general symptoms of poisoning such as headaches, nausea, dizziness, weakness, confusion and a drop in blood pressure. Liver damage with jaundice, elevated liver enzyme levels and alcohol intolerance reactions may occur. Severe effects can lead to unconsciousness and death.

Dimethylformamide irritates the upper respiratory tract.

Local exposure to liquid dimethylformamide or high vapor concentrations can cause severe irritation of the eyes with redness, burning, tearing or spasmodic eyelid closure.

A single, short-term exposure to dimethylformamide, from which the affected person recovers quickly, does not normally cause delayed or lasting damage to health. After inhaling relevant amounts of dimethylformamide, permanent respiratory disorders and increased susceptibility to lung infections have been reported.

Ingestion or absorption through the skin can cause damage to the gastrointestinal tract, the cardiovascular and central nervous systems, and the liver.

## 4. Measures

### 4.1. Self-protection for first aiders

If there is a suspicion that the area the helper must enter contains dimethylformamide, 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 dimethylformamide vapors. A patient who is wet with liquid dimethylformamide or whose clothing is wet with it may endanger other people through direct contact or through evaporating dimethylformamide.

#### 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 appropriate means, taking care to protect yourself. The "A, B, C procedure" has absolute priority.

- 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 dimethylformamide 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 decontamination. If liquid dimethylformamide has been exposed and clothing is contaminated, it must be removed and securely wrapped.

If the eyes have been exposed to dimethylformamide 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 first aid 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.

#### 4.4. Further measures

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

#### 4.5. Instructions for further rules of conduct

Consult 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
- Difficulty breathing or shortness of breath
- Increased pain or abnormalities in the affected skin areas or eyes
- Pain or tightness in the chest
- Cardiac arrhythmia

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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 dimethylformamide. 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.