

Section 1. Product and Company Identification

Product Name Dimethylformamide
CAS Number 68-12-2

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Section 2. Hazards Identification

Classification of the substance or mixture

Flammable liquids (Category 3)
 Acute toxicity, Oral (Category 5)
 Acute toxicity, Inhalation (Category 4)
 Acute toxicity, Dermal (Category 4)
 Skin irritation (Category 3)
 Eye irritation (Category 2A)
 Reproductive toxicity (Category 1B)

WHMIS Classification

B3	Combustible Liquid	Combustible Liquid
D2A	Very Toxic Material Causing Other Toxic Effects	Teratogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate eye irritant

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard statement(s)

H226: Flammable liquid and vapor.
H303: May be harmful if swallowed.
H312 + H332: Harmful in contact with skin or if inhaled
H316: Causes mild skin irritation.



H319: Causes serious eye irritation.

H360: May damage fertility or the unborn child.

Precautionary statement(s)

P201: Obtain special instructions before use.

P280: Wear protective gloves/ protective clothing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/ attention.

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: May be harmful if swallowed.

Target Organs: Liver, Kidney, Central nervous system, Cardiovascular system., Blood

Other hazards which do not result in classification: Rapidly absorbed through skin.

HMIS Classification

Health hazard: 2

Chronic Health Hazard: *

Flammability: 2

Physical hazards: 0

Section 3. Composition / Information on Ingredients

Common Name Dimethylformamide
Synonym(s) N,N'-Dimethylformamide
Formula C₃H₇NO
CAS Number 68-12-2

COMPONENT	CAS NUMBER	CONCENTRATION
Dimethylformamide	68-12-2	<=100%

Section 4. First Aid Measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.



If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Section 5. Firefighting Measures

Conditions of flammability: Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products: Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)

Explosion data - sensitivity to mechanical impact: No data available

Explosion data - sensitivity to static discharge: No data available

Further information: Use water spray to cool unopened containers.

Section 6. Accidental Release Measures

Personal precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Section 7. Handling and Storage

Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas.

Section 8. Exposure Controls / Personal Protection

Components with Workplace Control Parameters

Components	CAS No.	Value	Control Parameters	Basis



N,N-Dimethylformamide	68-12-2	TWA	10.000000 ppm	Canada. British Columbia OEL
Remarks	Contributes significantly to the overall exposure by the skin route			
		TWAEV	10.000000 ppm 30.000000 mg/m ³	Canada. Ontario OELs
	Skin			
		TWA	10.000000 ppm 30.000000 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		TWAEV	10 ppm 30 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		TWAEV	10.000000 ppm 30.000000 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		TWA	10 ppm 30 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		TWA	10 ppm	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		TWA	10 ppm	USA. ACGIH Threshold

				Limit Values (TLV)
		TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls: Use mechanical exhaust or laboratory fumehood to avoid exposure.

Section 9. Physical and Chemical Properties

Appearance

Form: liquid, clear

Color: colorless

Safety data

pH: 6.7

Melting point/freezing point: -61 °C (-78 °F)

Boiling point: 153 °C (307 °F) at 1,013 hPa (760 mmHg)

Flash point: 58 °C (136 °F) - closed cup

Ignition temperature: 445 °C (833 °F)

Auto-ignition temperature: No data available

Lower explosion limit: 2.2 %(V)

Upper explosion limit: 15.2 %(V)

Vapor pressure: 3.60 hPa (2.70 mmHg) at 20 °C (68 °F); 5.16 hPa (3.87 mmHg) at 25 °C (77 °F)

Density: 0.948 g/cm³

Water solubility: completely miscible



Partition coefficient n-octanol/water: log Pow: -1.01

Relative vapor density: 2.52 - (Air = 1.0)

Odor: amine-like

Odor Threshold: No data available

Evaporation rate: No data available

Section 10. Stability and Reactivity

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: No data available

Conditions to avoid: Heat, flames and sparks.

Materials to avoid: Strong oxidizing agents

Hazardous decomposition products: Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x)
Other decomposition products - No data available

Section 11. Toxicological Information

Acute toxicity

Oral LD50: LD50 Oral - Rat - 2,800 mg/kg

Inhalation LC50: LC50 Inhalation - Rat - 4 h - 9 - 15 mg/l

Dermal LD50: LD50 Dermal - Rabbit - 1,500 mg/kg

Other information on acute toxicity: No data available

Skin corrosion/irritation: Skin - Human - Mild skin irritation - 24 h

Serious eye damage/eye irritation: Eyes - Rabbit - Moderate eye irritation

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: Genotoxicity in vitro - Mouse - lymphocyte Mutation in mammalian somatic cells.

Carcinogenicity: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (N,N Dimethylformamide)

Reproductive toxicity

Teratogenicity: May cause congenital malformation in the fetus.

Specific target organ toxicity - single exposure (Globally Harmonized System): No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System): No data available

Aspiration hazard: No data available

Potential health effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin Causes: skin irritation.

Eyes: Causes eye irritation.



Signs and Symptoms of Exposure: Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin., Vomiting, Diarrhoea, Abdominal pain, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: No data available

Additional Information: RTECS: LQ2100000

Section 12. Ecological Information

Toxicity

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 9,000 - 13,000 mg/l - 96 h

LC50 - Lepomis macrochirus (Bluegill) - 6,700 - 7,500 mg/l - 96 h

LC50 - Pimephales promelas (fathead minnow) - 10,400 - 10,800 mg/l - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 9,800 mg/l - 96 h

LC50 - Lepomis macrochirus (Bluegill) - 6,300 mg/l - 96 h

LC50 - Pimephales promelas (fathead minnow) - 10,600 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 9,600 - 13,100 mg/l - 48 h

EC50 - Daphnia magna (Water flea) - 15,700 mg/l - 48 h

Toxicity to algae

LC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 96 h

Persistence and degradability

Biodegradability Result: > 90 % - Readily biodegradable

Bioaccumulative potential: No data available

Mobility in soil: No data available

PBT and vPvB assessment: No data available

Other adverse effects: No data available

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (US)

UN number: 2265

Class: 3

Packing group: III

Proper shipping name: N,N-Dimethylformamide

Reportable Quantity (RQ): 100 lbs

Marine pollutant: No

Poison Inhalation Hazard: No



IMDG

UN number: 2265

Class: 3

Packing group: III

EMS-No: F-E, S-D

Proper shipping name: N,N-DIMETHYLFORMAMIDE

Marine pollutant: No

IATA

UN number: 2265 **Class:** 3

Packing group: III

Proper shipping name: N,N-Dimethylformamide

Section 15. Regulatory Information

WHMIS Classification

B3: Combustible Liquid, Combustible Liquid

D2A: Very Toxic Material Causing Other Toxic Effects, Teratogen

D2B: Toxic Material Causing Other Toxic Effects, Moderate eye irritant

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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