

## Material Safety Data Sheet

Version 4.0

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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : *N,N*-Dimethylformamide

Product Number : 494488

Brand : Sigma-Aldrich

Company : Sigma-Aldrich Canada, Ltd  
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CANADA

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## 2. HAZARDS IDENTIFICATION

## Emergency Overview

## Target Organs

Kidney, Liver, Blood, Cardiovascular system., Central nervous system  
Liver, Kidney, Central nervous system, Cardiovascular system., Blood

## WHMIS Classification

B3 Combustible Liquid  
D2A  
D2B

Combustible Liquid  
Teratogen  
Moderate eye irritant

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapour.  
H303 May be harmful if swallowed.  
H312 Harmful in contact with skin.  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H360 May damage fertility or the unborn child.

Precautionary statement(s)

P201 Obtain special instructions before use.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
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.  
P311 Call a POISON CENTER or doctor/physician.

## HMIS Classification

Health hazard: 2  
Chronic Health Hazard: \*  
Flammability: 2  
Physical hazards: 0

## Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.
<b>Ingestion</b>	May be harmful if swallowed.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	: DMF
Formula	: C <sub>3</sub> H <sub>7</sub> NO
Molecular Weight	: 73.09 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>N,N-Dimethylformamide</b>			
68-12-2	200-679-5	616-001-00-X	-

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## 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

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
N,N-Dimethylformamide	68-12-2	TWA	10 ppm	2006-11-29	Canada. British Columbia OEL
Remarks	Contributes significantly to the overall exposure by the skin route.				
		TWAE V	10 ppm 30 mg/m <sup>3</sup>	2005-12-17	Canada. Ontario OELs
	Skin				
		TWA	10 ppm 30 mg/m <sup>3</sup>	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin				
		TWAE V	10 ppm 30 mg/m <sup>3</sup>	2006-12-29	Canada. Quebec OELs
	Skin (percutaneous)				

### 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.

#### Eye protection

Face shield and safety glasses

#### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid, clear
Colour	colourless
Odour	amine-like

### Safety data

pH	6.7
Melting point	-61 °C (-78 °F)
Boiling point	153 °C (307 °F)
Flash point	58 °C (136 °F) - closed cup

Ignition temperature	445 °C (833 °F)
Lower explosion limit	2.2 %(V)
Upper explosion limit	15.2 %(V)
Vapour pressure	3.60 hPa (2.70 mmHg) at 20 °C (68 °F) 5.16 hPa (3.87 mmHg) at 25 °C (77 °F)
Density	0.944 g/mL
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -1.01
Relative vapour density	2.52 - (Air = 1.0)

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Conditions to avoid

no data available

### Materials to avoid

Strong oxidizing agents

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 2,800 mg/kg

LC50 Inhalation - rat - 4 h - 9 - 15 mg/l

LD50 Dermal - rabbit - 4,720 mg/kg

LD50 Dermal - rabbit - 1,500 mg/kg

### 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

May cause congenital malformation in the fetus.

Presumed human reproductive toxicant

### Specific target organ toxicity - single exposure (GHS)

no data available

**Specific target organ toxicity - repeated exposure (GHS)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	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.

**Additional Information**

RTECS: LQ2100000

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**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

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS****Product**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

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**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

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**15. REGULATORY INFORMATION****DSL Status**

All components of this product are on the Canadian DSL list.

**WHMIS Classification**

B3	Combustible Liquid	Combustible Liquid
D2A		Teratogen
D2B		Moderate eye irritant

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**16. OTHER INFORMATION****Further information**

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