

Safety Data Sheet

DIMETHYLFORMAMIDE

Version 1.6

Revision Date: 11/11/2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DIMETHYLFORMAMIDE

Recommended use of the chemical and restrictions on use

Recommended use : SOLVENT

Manufacturer or supplier's details

Company : Univar Solutions USA
Address : 3075 Highland Pkwy Suite 200
 Downers Grove, IL 60515
 United States of America (USA)

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)

CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
 E-mail: SDSNA@univarsolutions.com
 SDS Requests: 1-855-429-2661
 Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Inhalation) : Category 4

Acute toxicity (Dermal) : Category 4

Eye irritation : Category 2A

Reproductive toxicity : Category 1B

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
 H312 + H332 Harmful in contact with skin or if inhaled.
 H319 Causes serious eye irritation.
 H360 May damage fertility or the unborn child.

Precautionary statements : **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 P233 Keep container tightly closed.

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P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
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.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

CAS-No.	Chemical name	Weight percent
68-12-2	Dimethylformamide	90 - 100

Any Concentration shown as a range is due to batch variation.

Synonyms : N,N-Dimethylformamide,**SECTION 4. FIRST AID MEASURES**

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical

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	advice.
	If symptoms persist, call a physician.
In case of skin contact	: If on skin, rinse well with water.
	If on clothes, remove clothes.
In case of eye contact	: Immediately flush eye(s) with plenty of water.
	Remove contact lenses.
	Protect unharmed eye.
	Keep eye wide open while rinsing.
	If eye irritation persists, consult a specialist.
If swallowed	: Keep respiratory tract clear.
	Do not give milk or alcoholic beverages.
	Never give anything by mouth to an unconscious person.
	If symptoms persist, call a physician.
	Take victim immediately to hospital.
	Do not induce vomiting without medical advice.
Notes to physician	: If ingested, irrigate the stomach using activated charcoal in addition.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	: High volume water jet
Specific hazards during fire-fighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	: Carbon oxides formaldehyde
Specific extinguishing methods	: Use a water spray to cool fully closed containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Further information	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments.
Special protective equipment for firefighters	: Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform

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respective authorities.

Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition. Vapours may form explosive mixtures with air.

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : No smoking. 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. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
68-12-2	Dimethylformamide	TWA	10 ppm	ACGIH
		TWA	10 ppm 30 mg/m ³	NIOSH REL
		TWA	10 ppm 30 mg/m ³	OSHA Z-1
		TWA	10 ppm 30 mg/m ³	OSHA P0

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

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Hand protection

Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	viscous, liquid
Colour	:	colourless
Odour	:	slight, amine-like, ammoniacal
Odour Threshold	:	No data available
pH	:	6.5 - 8.5 @ 20 % @ 20 - 38 °C (68 - 100 °F)
Freezing Point (Melting point/freezing point)	:	-61 °C (-78 °F)
Boiling Point (Boiling point/boiling range)	:	152 - 153 °C (306 - 307 °F) (1013 hPa)
Flash point	:	58 °C (136 °F) Method: Tag closed cup
Evaporation rate	:	0.5
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	15.2 - 16 %(V)
Lower explosion limit	:	2.2 %(V)
Vapour pressure	:	2.6 - 2.875 mmHg @ 20 °C (68 °F)
Relative vapour density	:	2.52 @ 20 °C (68 °F) (Air = 1.0)
Relative density	:	0.949 @ 20 °C (68 °F) Reference substance: (water = 1)
Density	:	0.949 g/cm ³ @ 20 °C (68 °F)
Solubility(ies)	:	
Water solubility	:	200 g/l soluble @ 20 °C (68 °F)
Solubility in other solvents	:	No data available
Partition coefficient: n-	:	log Pow: -0.85

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octanol/water

Auto-ignition temperature : 445 °C

Thermal decomposition : > 350 °C

Viscosity

Viscosity, dynamic : 0.802 mPa.s @ 25 °C (77 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Vapours may form explosive mixture with air.

Conditions to avoid : Keep away from heat, flame, sparks and other ignition sources.

Incompatible materials : Strong acids
Strong oxidizing agents
halogenated hydrocarbons
Alkali metals
Reducing agentsHazardous decomposition products : Carbon monoxide
Nitrogen oxides (NOx)
Ammonia
Carbon dioxide (CO2)
Hydrocarbons**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**Acute inhalation toxicity : Acute toxicity estimate: 15.15 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : Acute toxicity estimate: 1,111 mg/kg

Components:**68-12-2:**Acute inhalation toxicity : LC50 (Rat): 15 mg/l
Exposure time: 4 h
Assessment: The component/mixture is moderately toxic after short term inhalation.Acute dermal toxicity : Assessment: The component/mixture is moderately toxic after single contact with skin.
Remarks: No data available

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Serious eye damage/eye irritation

Components:

68-12-2:

Species: Rabbit

Result: Irritating to eyes.

Respiratory or skin sensitisation

Product:

Germ cell mutagenicity

Components:

68-12-2:

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

68-12-2:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

68-12-2:

Effects on fertility

: Test Type: Two-generation study
Species: Mouse, male and female
Application Route: Oral
Dose: 0, 1000, 4000, 7000 ppm
General Toxicity - Parent: LOAEL: < 1,000 ppm
General Toxicity F1: LOAEL: 1,000 ppm
Fertility: NOAEL: < 1,000 ppm
Symptoms: Reduced maternal body weight gain Reduced offspring weight gain Reduced fertility

Effects on foetal development

: Species: Rabbit
Application Route: Inhalation

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Dose: 0, 0.15, 0.45, 1.36 mg/L
 Duration of Single Treatment: 13 d
 Frequency of Treatment: 6 hr/day
 General Toxicity Maternal: NOAEC: 0.15 mg/L
 Teratogenicity: NOAEC: 0.15 mg/L
 Symptoms: Maternal toxicity, Reduced body weight, Skeletal malformations, Visceral malformations

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

Teratogenicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

STOT - repeated exposure

Product:

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Aspiration toxicity

Product:

No aspiration toxicity classification

Experience with human exposure

Product:

Inhalation : Symptoms: Inhalation may provoke the following symptoms:, Liver disorders, Kidney disorders
 Skin contact : Symptoms: Discomfort, Skin contact may provoke the following symptoms:, Severe irritation, Itching, Redness, Swelling of tissue
 Eye contact : Symptoms: Severe irritation, Pain, Swelling of tissue, Redness, eye irregularities
 Ingestion : Symptoms: Ingestion may provoke the following symptoms:, Kidney disorders, Liver disorders

Further information

Product:

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

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Persistence and degradability**Product:**

Biodegradability : Remarks: Readily biodegradable

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION**DOT (Department of Transportation):**

UN2265, N,N-Dimethylformamide, 3, III

IATA (International Air Transport Association):

UN2265, N,N-Dimethylformamide, 3, III

IMDG (International Maritime Dangerous Goods):

UN2265, N,N-DIMETHYLFORMAMIDE, 3, III, Flash Point: 58 °C (136 °F)

Special Notes: : In accordance with 49 CFR non-bulk containers (less than

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450L/119 gallon capacity) of this material may be shipped as non-regulated when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : B3: Combustible Liquid
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Dimethylformamide	68-12-2	100	101

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Reproductive toxicity

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

68-12-2 Dimethylformamide

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

68-12-2 Dimethylformamide

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

68-12-2 Dimethylformamide

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

68-12-2 Dimethylformamide

Pennsylvania Right To Know

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68-12-2

Dimethylformamide

California Prop 65

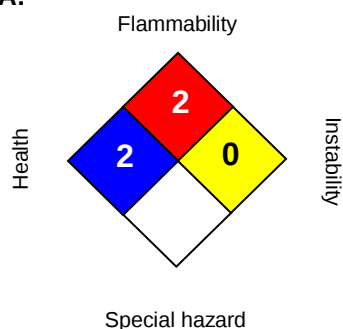
⚠ WARNING: This product can expose you to chemicals including Dimethylformamide, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA	: On TSCA Inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
PHIL	: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	2
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

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Legacy SDS: : R0000780

Material number:

16211624, 16207397, 16204461, 16193060, 16191926, 16182819, 16178051, 16177215, 16180752, 16179304, 16169592, 16143606, 16153505, 16151958, 16137239, 16153986, 16158304, 16152231, 16158535, 16153873, 16153388, 16144025, 16158984, 16158985, 16130974, 16098590, 16068065, 16052262, 16049718, 16048530, 16048529, 20174, 658787, 610886, 592019, 554231, 554066, 58309, 69200, 70470, 55537, 103229, 69744, 54482, 71453, 101860, 54203, 69106, 86435, 103623, 54313, 20173

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		