



MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : Dimethylformamide

Cat No.: D131-1; D131-4

CAS No. : 68-12-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended uses : Laboratory chemicals

Uses advised against: Food, drug, pesticide or biocidal product use.

1.3 Details of the supplier of the safety data sheet

Company : Krishna Solvechem Limited.
B/503, Sahayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.

Telephone : +91-22-6123 0222

Email : exports@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-8657457330

SECTION 2: Hazards identification

2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	(Category 3)
Acute dermal toxicity	(Category 4)
Acute inhalation toxicity – vapors	(Category 4)
Carcinogenicity	(Category 1B)
Reproductive toxicity	(Category 1B)
Serious Eye Damage/Eye Irritation	(Category 2)
Specific target organ toxicity (single exposure)	(Category 3)
Target Organs - Respiratory system, Central nervous system (CNS)	

2.2 Label elements

Pictogram :



Signal word Danger

Hazard statement (s) Flammable liquid and vapor



Precautionary statement (s)

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness
May damage the unborn child
May cause cancer

Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Inhalation :

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

IF ON SKIN (or hair):

If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage:

Store locked up
Store in a well-ventilated place.
Keep container tightly closed



Hazards not otherwise classified (HNOC)	Disposal: Dispose of contents/container to an approved waste disposal plant
	Lachrymator (substance which increases the flow of tears) WARNING : Cancer

SECTION 3: Composition / information on ingredients

3.1

Component	CAS-No	Weight %
Dimethylformamide	68-12-2	>95

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhalation :	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
In case of skin contact :	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
In case of eye contact :	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Ingestion :	Do NOT induce vomiting. Get medical attention
4.2 Most important symptoms and effects :	Irritating to eyes. Difficulty in breathing. May be harmful if absorbed through skin: Gastrointestinal discomfort: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
4.3 Notes to Physician :	Treat symptomatically

SECTION 5: Firefighting effects

5.1 Extinguishing media

Suitable extinguishing media :	Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media: :	No information available
5.2 Flash Point : Method :	58 °C / 136.4 °F Abel-Pensky (DIN 51755)



Autoignition Temperature:	445 °C / 833 °F
Explosion Limits:	
Upper	15.2 vol%
Lower	2.2 vol%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Specific Hazards Arising from the Chemical :	Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Thermal decomposition can lead to release of irritating gases and vapors.
Hazardous Combustion Products :	Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrogen oxides

5.4 Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA:

Health	Flammability	Instability	Physical hazards
2	2	0	N/A

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2 Environmental precautions

Should not be released into the environment. See section 12 for additional Ecological Information

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.



7.2 Conditions for safe storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Halogens. Halogenated compounds. Reducing Agent.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Dimethylformamide	TWA: 5 ppm Skin	(Vacated) TWA: 10 ppm (Vacated) TWA: 30 mg/m ³ Skin TWA: 10 ppm TWA: 30 mg/m ³	IDLH: 500 ppm TWA: 10 ppm TWA: 30 mg/m ³	TWA: 10 ppm

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Use only under a chemical fume hood.

8.2 Exposure controls

Personal protective equipment -

Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Colorless Liquid
b) Odour	Rotten – egg like
c) Odour Threshold	No information available
d) pH	6-8 @ 20°C 20% aq.sol
e) Melting point / freezing point	-61 °C / -77.8 °F
f) Initial boiling point and	153 °C / 307.4 °F



boiling range	
g) Flash point	58 °C / 136.4 °F method : Abel-Pensky (DIN 51755)
h) Evaporation rate	0.17
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	15.2 vol% 2.2 vol%
k) Vapour pressure	4.9 mbar @ 20 °C
l) Vapour density	2.5
m) Specific Gravity	0.945
n) Solubility	Soluble in water
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	445 °C / 833 °F
q) Decomposition temperature	> 350 °C.
r) Viscosity	0.8 mPa.s at 20 °C
s) Molecular formula	C3 H7 N O
t) Molecular Weight	73.09

SECTION 10: Stability and Reactivity

10.1 Reactive Hazard :	None known, based on information available
10.2 Chemical stability :	Stable under normal conditions.
10.3 Possibility of hazardous reactions :	None under normal processing.
10.4 Conditions to avoid :	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.
10.5 Incompatible materials:	Strong oxidizing agents, Halogens, Halogenated compounds, Reducing Agent
10.6 Hazardous decomposition products :	Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides
10.7 Hazardous Polymerization	Hazardous polymerization does not occur



SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information:

LC50 Inhalation (DUST) VALUE 9400 mg/m³/24 (mouse)

LC50 Inhalation (VAPOR) VALUE 3421 ppm/h (rat)

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dimethylformamide	3040 mg/kg (Rat)	1500 mg/kg (Rabbit) 3.2 g/kg (Rat)	>5.58 mg/L/4h (Rat)

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation : Irritating to eyes
Sensitization: No information available
Carcinogenicity : The table below indicates whether each agency has Any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Dimethylformamide	68-12-2	Group 2A	Not listed	A3	X	Not listed

Mutagenic Effects: No information available.

Reproductive Effects: Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects : May cause harm to the unborn child. Developmental effects have occurred in experimental

Teratogenicity: Teratogenic effects have occurred in experimental animals.

STOT - single exposure : Respiratory system. Central nervous system (CNS)

STOT - repeated exposure: None known

Aspiration hazard : No information available.

Symptoms / effects, both acute and delayed: May be harmful if absorbed through skin: Gastrointestinal discomfort: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information :

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors -Evaluated Substances	Japan - Endocrine Disruptor Information
Dimethylformamide	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects : The toxicological properties have not been fully investigated.



SECTION 12: Ecological information

12.1

Ecotoxicity:

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Dimethylformamide	EC50 = 7500 mg/L/96h	Pimephales promelas: LC50 = 10.6 g/L/96h Onchorhynchus mykiss: LC50 = 9.8 g/L/96h Lepomis macrochirus: LC50 = 6.3 g/L/96h	EC50 = 2000 mg/L 5 min EC50 = 570 mg/L 240 h	EC50 = 7500 mg/L/48h

12.2 Persistence and degradability: Persistence is unlikely

Bioaccumulation/ Accumulation No information available

12.3 Mobility: Will likely be mobile in the environment due to its water solubility but will likely degrade overtime. Will likely be mobile in the environment due to its water solubility. Log pow : -1.028

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

14.1 UN number :

DOT : UN2265 TDG : UN2265
IATA : UN2265 IMDG : UN2265

14.2 UN proper shipping name

DOT : DIMETHYLFORMAMIDE **TDG :** DIMETHYLFORMAMIDE
IATA : DIMETHYLFORMAMIDE **IMDG :** DIMETHYLFORMAMIDE

14.3 Transport hazard class(es) DOT: 3 TDG: 3 IMDG: 3 IATA: 3

14.4 Packaging group: DOT: III TDG: III IMDG: III IATA: III

SECTION 15: Regulatory information

15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
Dimethylformamide	78-77-3	X	ACTIVE	-

Legend:



TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories:

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia(AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Dimethyl formamide	68-12-2	X	-	200-679-5	X	X	X	X	X	KE-11411

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Dimethyl formamide	68-12-2	>95	0.1

SARA 311/312 Hazard Categories

See section 2 for more information

CWA (Clean Water Act)

Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Dimethyl formamide	X		-

OSHA - Occupational Safety and Health Administration

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Dimethylformamide	100 lb	-

California Proposition 65

This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Dimethylformamide	68-12-2	Carcinogen	-	Carcinogen

15.2 U.S. State Right-to-Know Regulations:

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dimethylformamide	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y



DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security - This product does not contain the any DHS Chemicals.

Other International Regulations

Mexico – Grade Moderate risk, Grade 2

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Dimethyl formamide	68-12-2	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Dimethyl formamide	68-12-2	Not applicable	Not applicable	Not applicable	Annex I - Y42

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
 Krishna Solvechem
 Limited
Email: exports@kscl.co.in
Creation Date: 23-Mar-2012
Revision Date: 19-July-2023
Print Date: 19-July-2023
Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C F R 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16.2 Disclaimer:
 The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

