

Material Safety Data Sheet



N,N-DIMETHYL FORMAMIDE 99.9% GC GRADE

VERSION : 05
REVISION DATE : 14/06/2025
EFFECTIVE DATE : 16/06/2025

Product Code : 14186

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1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : **N,N-DIMETHYL FORMAMIDE 99.9% GC GRADE**
Product code : 14186
Identification of the product : **N,N-DIMETHYL FORMAMIDE 99.9% GC GRADE**
CAS No : 68-12-2
EC Index-No. : 616-001-00-X
EC No. : 200-679-5
Synonyms : Dimethyl formamide, N,N-Dimethyl methanamide, DMF

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3. Details of the supplier of the safety data sheet

Company identification

MOLYCHEM INDIA LLP
Office: Maker Tower 'E', 41-A2, 4th Floor, Above Maker Arcade, Cuffe Parade, Mumbai 400 005 (INDIA)
Tel: +91 22 4066 8111, 2205 7772 .
Email : info@molychem.net
Works: Plot No. B/9, Badlapur M.I.D.C.,
OPP.Shobhavat Textile Co., Kulgaon, Badlapur (E),
Dist.-Thane-421 503.

1.4. Emergency telephone number

Emergency number : +91 22 4066 8111 (10:00am - 6:00 pm)

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 3 H226
Acute toxicity (dermal), Category 4 H312
Acute toxicity (inhal.), Category 4 H332
Serious eye damage/eye irritation, Category 2 H319
Reproductive toxicity, Category 1B H360D

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May damage fertility or the unborn child. Harmful in contact with skin.
Harmful if inhaled. Causes serious eye irritation.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS06 GHS07

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H226 - Flammable liquid and vapour.
H312+H332 - Harmful in contact with skin or if inhaled.
H319 - Causes serious eye irritation
H360D - May damage the unborn child.

Precautionary statements (CLP)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective clothing, eye protection, face protection, protective gloves.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

3. Composition/information on ingredients

3.1. Substances

Name : N,N-DIMETHYL FORMAMIDE 99.9% GC GRADE

CAS-No : 68-12-2

3.2. Mixtures

Not applicable

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4. First aid measures

4.1. Description of first aid measures

- First-aid measures general : IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. If you feel unwell, seek medical advice. Call a poison center or a doctor if you feel unwell.
- First-aid measures after skin contact : Immediately call a POISON CENTER/doctor. Wash with plenty of water/.... Wash contaminated clothing before reuse. Rinse skin with water/shower. Take off immediately all contaminated clothing.
- First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth out with water. If you feel unwell, seek medical advice. Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects after inhalation : Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
- Symptoms/effects after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
- Symptoms/effects after eye contact : Causes serious eye irritation. Eye irritation.
- Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂). Water spray. Dry powder. Foam. Carbon

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Unsuitable extinguishing media : dioxide.
: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.
Explosion hazard : May form flammable/explosive vapour-air mixture
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3 Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel. No open flames, no sparks, and no smoking. Only qualified personnel equipped with suitable protective equipment may intervene. Avoid breathing dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/ personal protection"
Emergency procedures : Stop release. Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

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6.3. Methods and material for containment and cleaning up

- For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
- Methods for cleaning up : Take up liquid spill into absorbent material. Collect spillage. On land, sweep or shovel into suitable containers. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

7. Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof

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Storage conditions : electrical/ventilating/lighting equipment
: Store in original container. Keep container tightly closed.
Store in a dry place. Protect from moisture. Store in a
well-ventilated place. Keep cool. Store locked up.

Storage away from : Open flame. Heat. Sparks. Avoid contact with hot
surfaces. No flames, no sparks. Eliminate all sources of
ignition.

7.3. Specific end use(s)

No additional information available

8. Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Eye protection : Chemical goggles or safety glasses
Hand protection : Wear protective gloves
Skin protection : Wear suitable protective clothing
Respiratory protection : Wear appropriate mask. [In case of inadequate
ventilation] wear respiratory protection.
Thermal hazards : No additional information available

8.2.3. Environmental exposure controls

Avoid release to the environment

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9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 73.09 g/mol
Colour	: Colourless
Odour	: fishy pungent & amine like.
Odour threshold	: Not available
pH	: Not available
Melting point	: Not applicable
Freezing point	: -61 °C
Boiling point	: 152-154°C
Flash point	: 58 °C
Auto-ignition temperature	: 445 °C
Decomposition temperature	: > 350 °C
Flammability (solid, gas)	: Flammable Flammable liquid and vapour.
Vapour pressure	: 3.77 hPa at 20 °C
Relative vapour density at 20 °C	: 2.51 (Air = 1.0)
Relative density	: Not available
Density	: 0.948-0.950g
Solubility	: Water: Miscible
Partition coefficient n-octanol/water (Log Pow)	: 1.01
Viscosity, kinematic	: 0.969 mm ² /s
Viscosity, dynamic	: 0.92 mPa·s at 20 °C

9.2. Other information

Refractive index $[n]_D^{20}$: 1.429-1.430

10. Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

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Open flame. Direct sunlight. Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Harmful if inhaled.
Skin corrosion/irritation	: Not classified
Additional information	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: May damage the unborn child.
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

12. Ecological information

12.1. Toxicity

Ecology - general	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	Not classified
Hazardous to the aquatic environment, long-term (chronic)	Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

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No additional information available

12.5 Results of PBT and vPvB assessment

No additional information available

12.6 Other adverse effects

No additional information available

13. Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations.
Additional information	: Flammable vapours may accumulate in the container. Do not re-use empty containers.

14. Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number

UN-No. (ADR)	: UN 2265
UN-No. (IMDG)	: UN 2265
UN-No. (IATA)	: UN 2265
UN-No. (ADN)	: UN 2265
UN-No. (RID)	: UN 2265

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: N,N-DIMETHYLFORMAMIDE
Proper Shipping Name (IMDG)	: N,N-DIMETHYLFORMAMIDE
Proper Shipping Name (IATA)	: n,n-Dimethylformamide
Proper Shipping Name (ADN)	: N,N-DIMETHYLFORMAMIDE
Proper Shipping Name (RID)	: N,N-DIMETHYLFORMAMIDE
Transport document description (ADR)	: UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III, (D/E)
Transport document description (IMDG)	: UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III (58°C c.c.)
Transport document description (IATA)	: UN 2265 n,n-Dimethylformamide, 3, III

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Transport document description (ADN) : UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III
Transport document description (RID) : UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 3

Danger labels (ADR) : 3

IMDG

Transport hazard class(es) (IMDG) : 3

Danger labels (IMDG) : 3

IATA

Transport hazard class(es) (IATA) : 3

Danger labels (IATA) : 3

ADN

Transport hazard class(es) (ADN) : 3

Danger labels (ADN) : 3

RID

Transport hazard class(es) (RID) : 3

Danger labels (RID) : 3

14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : F1

Limited quantities (ADR) : 51

Excepted quantities (ADR) : E1

Packing instructions (ADR) : P001, IBC03, LP01, R001

Mixed packing provisions (ADR) : MP19

Portable tank and bulk container : T2

instructions (ADR)

Portable tank and bulk container special : TP2

provisions (ADR)

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Tank code (ADR) : LGBF

Vehicle for tank carriage : FL

Transport category (ADR) : 3

Special provisions for carriage - Operation (ADR) : S2

Hazard identification number (Kemler No.) : 30

Tunnel restriction code (ADR) : D/E

EAC code : •2Y

Transport by sea

Limited quantities (IMDG) : 5 L

Excepted quantities (IMDG) : E1

Packing instructions (IMDG) : P001, LP01

IBC packing instructions (IMDG) : IBC03

Tank instructions (IMDG) : T2

Tank special provisions (IMDG) : TP2

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-D

Stowage category (IMDG) : A

Flash point (IMDG) : 58°C c.c.

MFAG-No : 129

Air transport

PCA Excepted quantities (IATA) : E1

PCA Limited quantities (IATA) : Y344

PCA limited quantity max net quantity (IATA) : 10L

PCA packing instructions (IATA) : 355

PCA max net quantity (IATA) : 60L

CAO packing instructions (IATA) : 366

CAO max net quantity (IATA) : 220L

ERG code (IATA) : 3L

Inland waterway transport

Classification code (ADN) : F1

Limited quantities (ADN) : 5 L

Excepted quantities (ADN) : E1

Carriage permitted (ADN) : T

Equipment required (ADN) : PP, EX, A

Ventilation (ADN) : VE01

Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : F1

Limited quantities (RID) : 5L

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Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T2
Portable tank and bulk container special provisions (RID) : TP2
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 3
Colis express (express parcels) (RID) : CE4
Hazard identification number (RID) : 30

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

15. Regulatory information

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

15.1.1 EU-Regulations

EU restriction list (REACH Annex XVII)

Reference code Applicable on	Reference code Applicable on
3(a)	N,N-DIMETHYL FORMAMIDE
3(b)	N,N-DIMETHYL FORMAMIDE
30.	N,N-DIMETHYL FORMAMIDE
40	N,N-DIMETHYL FORMAMIDE
72.	N,N-DIMETHYL FORMAMIDE

Not listed on REACH Annex XIV (Authorisation List)

Listed on the REACH Candidate List: N,N-dimethylformamide

Not listed on the PIC list (Regulation EU 649/2012)

Not listed on the POP list (Regulation EU 2019/1021)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

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Material Safety Data Sheet



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France

Occupational diseases

Code	Description
RG 84	Conditions caused by liquid organic solvents for professional use: saturated or unsaturated aliphatic or cyclic liquid hydrocarbons and mixtures thereof; liquid halogenated hydrocarbons; nitrated derivatives of aliphatic hydrocarbons; alcohols; glycols, glycol ethers; ketones; aldehydes; aliphatic and cyclic ethers, including tetrahydrofuran; esters; dimethylformamide and dimethylacetamine; acetonitrile and propionitrile; pyridine; dimethylsulfone and dimethylsulfoxide

Germany

Water hazard class (WGK)

: WGK 2, Significantly hazardous to water
(Classification according to AwSV; ID No. 83).

Hazardous Incident Ordinance (12. BImSchV)

: Is not subject of the Hazardous Incident Ordinance
(12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen

: The substance is not listed

SZW-lijst van mutagene stoffen

: The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding

: The substance is not listed

SZW-lijst van reprotoxische stoffen –
Vruchtbaarheid

: The substance is not listed

SZW-lijst van reprotoxische stoffen –
Ontwikkeling

: The substance is not listed

Denmark

Classification remarks

: Flammable according to the Danish Ministry of
Justice; Emergency management guidelines for the
storage of flammable liquids must be followed

Danish National Regulations

: Young people below the age of 18 years are not
allowed to use the product Pregnant/breastfeeding
women working with the product must not be in
direct contact with the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

16. Other information

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
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ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand
COD	Chemical oxygen demand
COD	Chemical oxygen demand
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties
Full text of H- and EUH-statements	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2

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STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Safety Data Sheet (SDS), EU This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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