
Safety Data Sheet

Product Name	N,N-Dimethylformamide
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Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification:**Product Description:** N,N-Dimethylformamide**Synonyms:** DMF**CAS-No:** 68-12-2**EC-No.:** 200-679-5**Molecular Formula:** C₃H₇NO**REACH Registration No:** 01-2119475605-32-XXXX**1.2. Relevant identified uses of the substance or mixture and uses advised against:****Recommended Use:** Laboratory chemicals, Manufacture of substances**1.3. Details of the supplier of the safety data sheet:**

- **Company** **Finar Limited**
184-186/P, Chacharwadi Vasna,
Sarkhej-Bavla Highway,
Ta.: Sanand, Dist.: Ahmedabad-382110, Gujarat, India.
Web: www.finarchemicals.com
- **E-Mail Address** safety.finar@aceto.com; info.finar@aceto.com

1.4. Emergency Telephone Number:

- For Emergency contact on: +91 - 2717 - 616 717

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SECTION 2: HAZARDS IDENTIFICATION**2.1. Classification of the substance or mixture:****Classification according to Regulation (EC) No 1272/2008**

Flammable liquids (Category 3), H226

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Eye irritation (Category 2), H319

Reproductive toxicity (Category 1B), H360D

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. Label Elements:**Labelling according Regulation (EC) No 1272/2008****Pictogram****Signal word: Danger**

Hazard statement(s)

H226 Flammable liquid and vapor.

H312 + H332 Harmful in contact with skin or if inhaled.

H319 Causes serious eye irritation.

H360D May damage the unborn child.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water.

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.

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

Supplemental Hazard Statements: none

Restricted to professional users.

Reduced Labelling (<= 125 ml)

Pictogram



Signal word: Danger

Hazard statement(s)

H360D May damage the unborn child.

Precautionary statement(s)

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

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

Supplemental Hazard Statements: none

2.3. Other Hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Rapidly absorbed through skin.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances:** N,N-Dimethylformamide

3.2. **Mixtures:**

Component	CAS-No	EC-No.	Weight %
N,N-Dimethylformamide	68-12-2	200-679-5	>95

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SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures:**

- **General advice**

Show this safety data sheet to the doctor in attendance.

- **If inhaled**

Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

If not breathing, give artificial respiration.

- **If Contact with skin**

Wash off immediately with plenty of water for at least 15 minutes.

Immediate medical attention is required.

- **In case of eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Immediate medical attention is required.

- **If swallowed**

Do not induce vomiting. Call a physician or Poison Control Center immediately.

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

Irritating to eyes. Breathing difficulties. May be harmful if absorbed through skin:

Gastrointestinal discomfort: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

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

No data available

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media:**

Suitable Extinguishing Media- Use water, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media- For this substance/mixture no limitations of extinguishing agents are given.

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5.2. Special hazards arising from the substance or mixture:

Carbon oxides

Nitrogen oxides (NO_x)

Combustible.

Fire may cause evolution of: nitrogen oxides

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters:

Stay in danger area only with self-contained breathing apparatus.

Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further Information:

Remove container from danger zone and cool with water.

Suppress (knock down) gases/vapors/mists with a water spray jet.

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact.

Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2. Environmental precautions:

Do not let product enter drains. Risk of explosion.

6.3. Methods and material for containment and cleaning up:

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material.

Dispose of properly. Clean up affected area.

6.4. Reference to other sections:

For disposal see Sections 13.

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SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling:****Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection.

Wash hands and face after working with substance.

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities:**Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Handle and store under inert gas.

7.3. Specific end use(s):

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters:**

Ingredients with workplace control parameters

8.2. Exposure Controls:

- **Appropriate Engineering Controls:**

Personal Protective Equipment:**Eye & Face Protection-**

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

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Hand Protection-

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

(e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact-

Material: Butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

(e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact-

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 240 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Body Protective equipment-

Flame retardant antistatic protective clothing.

Respiratory Protection-

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Environmental Exposure Controls-

Do not let product enter drains. Risk of explosion.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties:**

- **Appearance:** Colorless
- **Physical State:** Liquid
- **Odor:** amine-like
- **Odor Threshold:** 0.329 ppm
- **pH:** 7 at 200 g/l at 20 °C
- **Melting Point:** -61 °C
- **Critical Temperature:** No data available
- **Vapor Pressure:** 3.77 hPa at 20 °C
- **Vapor Density:** 2.52 - (Air = 1.0)
- **Density:** 0.944 g/mL
- **Autoignition Temperature:** 445 °C
- **Volatility:** No data available
- **Bulk Density:** No data available
- **Viscosity, dynamic:** 0.86 mPa.s at 20 °C
- **Water/Oil Dist. Co eff.:** No data available
- **Partition Coefficient: n- octanol/water:** log Pow: -0.85 at 25 °C - Bioaccumulation is not expected.
- **Lower Explosion Limit:** 2.2 %(V)
- **Upper Explosion Limit:** 15.2 %(V)
- **Boiling Point/Range:** 153 °C
- **Flash Point:** 58 °C
- **Specific Gravity:** 0.945
- **Surface Tension:** 36.42 mN/m (25 °C)
- **Water Solubility:** Completely miscible

9.2. Other information:

- **Molecular Formula:** C₃H₇NO
- **Molecular Weight:** 73.09 g/mol

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SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity:**

Vapor/air-mixtures are explosive at intense warming.

10.2. Chemical stability:

The product is chemically stable under standard ambient conditions (room temperature).

10.3. Possibility of hazardous reactions:

Violent reactions possible with:

Alkali metals

halogens

halides

Reducing agents

triethylaluminium

nitrates

metallic oxides

nonmetallic oxides

Halogenated hydrocarbon

Isocyanates

sodium

Sodium borohydride

hydrides

Oxidizing agents

Oxides of phosphorus

A risk of explosion and/or of toxic gas formation exists with the following substances:

azides

Bromine

Chlorine

chromium(VI) oxide

potassium permanganate

triethylaluminium

chlorates

Halogenated hydrocarbon

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with

Iron

10.4. Conditions to avoid:

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials:

Strong oxidizing agents, Halogens, Halogenated compounds, Reducing agents.
various plastics, Copper, Copper alloys, Tin

10.6. Hazardous decomposition products:

Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:**Acute toxicity:**

LD50 Oral - Rat - male and female - 3.010 mg/kg

(OECD Test Guideline 401)

Symptoms: Gastrointestinal disturbance

Acute toxicity estimate Inhalation - 4 h – 11.1 mg/l

(Expert judgment)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

LD50 Dermal - Rabbit - 1.500 mg/kg

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

(IUCLID)

Skin corrosion/irritation:

Skin - Rabbit

Result: No skin irritation - 20 h

Remarks: (ECHA)

Serious eye damage/eye irritation:

Eyes - Rabbit

Result: Eye irritation

Remarks: (ECHA)

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(Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization:

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity:

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay

Test system: human diploid fibroblasts

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal injection

Result: negative

Remarks: (ECHA)

Test Type: dominant lethal test

Species: Rat

Application Route: Inhalation

Result: negative

Remarks: (ECHA)

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Test Type: dominant lethal test

Species: Mouse

Application Route: Intraperitoneal

Result: negative

Remarks: (ECHA)

Test Type: Micronucleus test

Species: Mouse

Application Route: Intraperitoneal

Result: negative

Remarks: (ECHA)

Carcinogenicity:

No data available

Reproductive toxicity:

May damage the unborn child.

Teratogenicity:

No data available

Specific target organ toxicity - single exposure:

No data available

Specific target organ toxicity - repeated exposure:

No data available

Aspiration hazard:

No data available

11.2 Further Information:

Repeated dose toxicity - Rat - male and female - Oral - 28 d - NOAEL (No observed adverse effect level) - 238 mg/kg - LOAEL (Lowest observed adverse effect level) - 475 mg/kg

Remarks: Subacute toxicity

RTECS: LQ2100000

Vomiting

Diarrhea

Abdominal pain

Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure.

N,N-dimethylformamide is considered to be a potent liver toxin.

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache

Dizziness

Drowsiness

Damage to: Kidney, Liver

This substance should be handled with particular care.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

Toxicity to fish

Flow-through test LC50 - Lepomis macrochirus (Bluegill sunfish) - 7.100 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates

Static test EC50 - Daphnia magna (Water flea) - 13.100 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae

Static test ErC50 - Desmodesmus subspicatus (green algae) - > 1.000 mg/l - 72 h (DIN 38412)

Toxicity to bacteria

Static test EC50 - Vibrio fischeri - 12.300 - 17.500 mg/l - 5 min
Remarks: (ECHA)

12.2 Persistence and degradability:

Biodegradability : aerobic - Exposure time 21 d
Result: 100 % - Readily biodegradable.
(OECD Test Guideline 301E)

Biochemical Oxygen Demand (BOD): 900 mg/g
Remarks: (Lit.)

Theoretical oxygen demand : 1.863 mg/g
Remarks: (Lit.)

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12.3 Bioaccumulate potential:

Bioaccumulation Cyprinus carpio (Carp) - 56 d at 25 °C – 0.002 mg/l (N,N-dimethylformamide)
 Bioconcentration factor (BCF): 0.3 – 1.2
 (OECD Test Guideline 305C)
 Remarks: Does not significantly accumulate in organisms.

12.4 Mobility in soil:

No data available

12.5 Results of PBT and vPvB assessment:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects:

Additional ecological information
 No data available
 Stability in water - ca.50 d
 Remarks: reaction with hydroxyl radicals(calculated)(Lit.)

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.

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SECTION 14: Transport information

	Land transport (ADR/RID)	Air transport (IATA)	Sea transport (IMDG)
14.1 UN number	UN 2265		
14.2 Proper shipping name	N, N-DIMETHYLFORMAMIDE		
14.3 Class	3		
14.4 Packing group	III		
14.5 Environmentally hazardous	NO		
14.6 Special precautions for user	No data available		
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not Relevant		

SECTION 15: Regulatory information

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

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : N,N-dimethylformamide

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : N,N-dimethylformamide

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances : FLAMMABLE LIQUIDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or

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stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3.**

H226 Flammable liquid and vapor.

H312 Harmful in contact with skin.

H312 + H332 Harmful in contact with skin or if inhaled.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H360D May damage the unborn child.

Training advice:

Provide adequate information, instruction and training for operators.

References: Not available

Created: 24/09/2021

Disclaimer:

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