



Preparing for the New Era of Laboratories

MATERIAL SAFETY DATA SHEET (MSDS)

According to regulation (EU) no.1907/2006

N,N-DIMETHYLFORMAMIDE 99% for Synthesis

PRODUCT CODE : B-3054

CAS No : 68-12-2

FORMULA : $\text{C}_3\text{H}_7\text{NO}$

UN No : 2265

MATERIAL SAFETY DATA SHEET (SDS/MSDS)

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MSDS Number : 0234

Date : Aug 26th, 2024

Version : 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product Name** : N,N-DIMETHYLFORMAMIDE 99% FOR SYNTHESIS
Synonyms : DMF; N,N-Dimethylmethanamide, Formic acid dimethylamide
CAS No. : 68-12-2
HS Code : 2924 29 90
Chemical Formula : $\text{HCON}(\text{CH}_3)_2$ $\text{C}_3\text{H}_7\text{NO}$ Hill
Molecular Weight : 73.10 g/mol
Product Code : B-3054
Brand : Labotiq
1.2 Manufacturer : Labotiq
Address : Jl.Terapi Raya AD2-Bumi Menteng Asri Bogor, Jawa Barat Indonesia – 16111
Website : www.labotiq.net
Email : labotiq.id@gmail.com
For information : Phone : (+62-251) 839110, 8311662, Fax : (+62-251) 83135710
Emergency number : +6281316894650
1.3 Application : Laboratory chemicals, Manufacture of substances, General Chemical reagent

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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 vapour.

H312 + H332

Harmful in contact with skin or if inhaled.

H319

Causes serious eye irritation.

H360D

May damage the unborn child.

Precautionary statement(s)

P201

Obtain special instructions before use.

P210

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

P261

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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P280	Wear protective gloves/ protective clothing/ eye protection/ face 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
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.

Supplemental Hazard Statements none
Restricted to professional users.

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

Synonyms	: DMF; N,N-Dimethylmethanamide, Formic acid dimethylamide
Formula	: HCON(CH ₃) ₂ C ₃ H ₇ NO Hill
Molecular weight	: 73.10 g/mol
CAS-No.	: 68-12-2
EC-No.	: 200-679-5
Index-No.	: 616-001-00-X

3.2 Mixture

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
N,N-Dimethylformamide CAS-No. 68-12-2 EC-No. 200-679-5 Index-No. 616-001-00-X	Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2; Repr. 1B; H226, H332, H312, H319, H360D	<=100 %

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

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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**

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Carbon oxides Nitrogen oxides (NO_x) Combustible. 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.

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6.3 Methods and materials 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 (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

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.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

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****8.2 Exposure controls****Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

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

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have

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to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: butyl-rubber
Minimum layer thickness: 0,7 mm
Break through time: 480 min
Material tested: Butoject®

Splash contact

Splash contact
Material: Viton®
Minimum layer thickness: 0,7 mm
Break through time: 240 min
Material tested: Vitoject®

Body Protection

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.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid, clear Colour: colourless
Odour	amine-like
Odour Threshold	0,329 ppm
pH	7 at 200 g/l at 20 °C
Melting point/freezingpoint	Melting point/range: -61 °C - lit.
Initial boiling point and boiling range	153 °C
Flash point	57,5 °C - closed cup - DIN 51755 Part 2
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or	Upper explosion limit: 16 %(V) Lower explosion limit: 2,2 %(V)
explosive limits	No data available
Vapour pressure	3,77 hPa at 20 °C
Vapour density	2,52 - (Air = 1.0)
Relative density	0,944 g/mL - lit.
Water solubility	1.000 g/l at 20 °C completely miscible
Partition coefficient: octanol/water	log Pow: -0,85 at 25 °C - Bioaccumulation is not expected.
Auto-ignition temperature	435 °C at 1.013 hPa - DIN 51794
Decomposition temperature	> 350 °C -
Viscosity	Viscosity, dynamic: 0,86 mPa.s at 20 °C
Explosive properties	No data available

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Oxidizing properties

none

9.2 Other safety information

Relative vapor density

2,52 - (Air = 1.0)

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 with Iron

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

various plastics, Copper, Copper alloys, Tin

10.6 Hazardous decomposition products

In the event of fire: see section 5

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

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Respiratory or skin sensitisation

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)

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

Carcinogenicity - Did not show carcinogenic effects in animal experiments. (Lit.)

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (N,N-Dimethylformamide)

Reproductive toxicity

May damage the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

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Additional Information

No data available

SECTION 12: Ecological information**12.1 Toxicity***Toxicity to fish*

flow-through test

LC50 - Lepomis macrochirus (Bluegill sunfish) - 7.100 mg/l - 96 h(N,N-Dimethylformamide)
(US-EPA)*Toxicity to daphnia and other aquatic invertebrates*static test EC50 - Daphnia magna (Water flea) - 13.100 mg/l - 48 h(N,NDimethylformamide)
(OECD Test Guideline 202)*Toxicity to algae*static test EC50 - Desmodesmus subspicatus (green algae) - > 1.000 mg/l - 72 h
(N,N-Dimethylformamide) (DIN 38412)*Toxicity to bacteria*

static test EC50 - Vibrio fischeri - 12.300 - 17.500 mg/l - 5 min(N,NDimethylformamide)

Remarks: (External MSDS)

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.)

12.3 Bioaccumulative 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

Stability in water - ca.50 d(N,N-Dimethylformamide)

Test substance: Water

Remarks: reaction with hydroxyl radicals(calculated)(Lit.)

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2265

IMDG: 2265

IATA: 2265

14.2 UN proper shipping name

ADR/RID: N,N-DIMETHYLFORMAMIDE

IMDG: N,N-DIMETHYLFORMAMIDE

IATA: N,N-Dimethylformamide

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

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

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
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.

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

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Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Labotiq shall not be held liable for any damage resulting from handling or from contact with the above product.

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Revision Date : August 26, 2024