

### Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878 Issue date: 7/23/2025 Version: 1.0

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

### 1.1. Product identifier

Product form : Mixture

Trade name : 4-METHYLMORPHOLINE N-OXIDE SOLUTION 50 WT. % IN WATER

Product code : 04669
Type of product : Solution

Synonyms : NMMO solution, NMO solution, NSC 73198, NSC 82153

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

#### Relevant identified uses

Use of the substance/mixture : Laboratory chemicals

### 1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.

107 Wode House Road, Jehangir Villa, Colaba

400005 Mumbai

**INDIA** 

T +91 22 6663 6663, F +91 22 6663 6699 info@lobachemie.com, www.lobachemie.com

### 1.4. Emergency telephone number

Emergency number : + 91 22 6663 6663 (9:00am - 6:00 pm)

### **SECTION 2: Hazards identification**

### 2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 2 H319
Specific target organ toxicity – Single exposure, Category 3, H335

Respiratory tract irritation

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

### Adverse physicochemical, human health and environmental effects

May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

### 2.2. Label elements

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

Hazard pictograms (CLP)



GHS07

Signal word (CLP) : Warning

Contains : 4-METHYLMORPHOLINE N-OXIDE

Hazard statements (CLP) : H315 - Causes skin irritation.

H319 - Causes serious eye irritation. H335 - May cause respiratory irritation.

Precautionary statements (CLP) : P280 - Wear protective gloves, protective clothing, eye protection, face protection.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

### 2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

### **SECTION 3: Composition/information on ingredients**

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
4-METHYLMORPHOLINE N-OXIDE	CAS-No.: 7529-22-8 EC-No.: 231-391-8	49 – 51	Flam. Sol. 1, H228 Repr. 2, H361f
WATER	CAS-No.: 7732-18-5 EC-No.: 231-791-2	49 – 51	Not classified

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

### **SECTION 4: First aid measures**

### 4.1. Description of first aid measures

First-aid measures general : 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. Call a poison center or a

doctor if you feel unwell.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get

medical advice/attention.

First-aid measures after eye contact : 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.

First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

Self protection of the first-aider : First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : Irritation.
Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : None under normal conditions.

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

Treat symptomatically.

### **SECTION 5: Firefighting measures**

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

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

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

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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.

### **SECTION 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.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact

with skin and eyes.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information

refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

### 6.2. Environmental precautions

Avoid release to the environment.

### 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.

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.

### **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid breathing

dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Wear personal

protective equipment.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this

product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

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

Storage temperature : 2 – 8 °C

Packaging materials : Store always product in container of same material as original container.

**Switzerland** 

Storage class (LK) : LK 10/12 - Liquids

### 7.3. Specific end use(s)

No additional information available

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### **SECTION 8: Exposure controls/personal protection**

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

### **Appropriate engineering controls**

#### Appropriate engineering controls:

Ensure good ventilation of the work station.

#### Personal protection equipment

### Personal protective equipment:

Wear recommended personal protective equipment.

### Personal protective equipment symbol(s):







### Eye and face protection

### Eye protection:

Chemical goggles or face shield

### Skin protection

### Skin and body protection:

Wear a mask

### Hand protection:

Protective gloves

### **Respiratory protection**

### Respiratory protection:

Wear appropriate mask

### **Environmental exposure controls**

### **Environmental exposure controls:**

Avoid release to the environment.

### **SECTION 9: Physical and chemical properties**

## 9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Colourless to yellow.

: Clear liquid. Appearance : Not available Odour Odour threshold Not available Melting point : Not applicable Freezing point : -20 °C Boiling point 118.5 - 119 °C Flammability Non flammable. Lower explosion limit : Not available

Upper explosion limit : Not available
Upper explosion limit : Not available
Flash point : Not available
Auto-ignition temperature : Not available
Decomposition temperature : Not available
pH : 7 - 8

Viscosity, kinematic : Not available
Solubility : Water: Miscible

Partition coefficient n-octanol/water (Log Kow)

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: Not available

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Vapour pressure : Not available
Vapour pressure at 50°C : Not available
Density : 1.13 g/cm³ at 25 °C
Relative density : Not available
Relative vapour density at 20°C : Not available
Particle characteristics : Not applicable

#### 9.2. Other information

No additional information available

### **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

#### 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

None under recommended storage and handling conditions (see section 7).

### 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.

### **SECTION 11: Toxicological information**

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified
Skin corrosion/irritation : Causes skin irritation.

pH: 7 - 8

WATER (	(7732-18-5)
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pH 6 – 8 at 25°C

Serious eye damage/irritation : Causes serious eye irritation.

pH: 7 – 8

### WATER (7732-18-5)

pH 6 – 8 at 25°C

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified Aspiration hazard : Not classified

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4-METHYLMORPHOLINE N-OXIDE (7529-22-8)		
Viscosity, kinematic Not applicable		
WATER (7732-18-5)		
Viscosity, kinematic 0.894 mm²/s		

### 11.2. Information on other hazards

No additional information available

### **SECTION 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

: Not classified

(chronic)

### 12.2. Persistence and degradability

4-METHYLMORPHOLINE N-OXIDE SOLUTION 50 WT. % IN WATER		
Persistence and degradability Rapidly degradable		
4-METHYLMORPHOLINE N-OXIDE (7529-22-8)		
Persistence and degradability Rapidly degradable		
WATER (7732-18-5)		
Persistence and degradability Rapidly degradable		

### 12.3. Bioaccumulative potential

4-METHYLMORPHOLINE N-OXIDE (7529-22-8)		
Partition coefficient n-octanol/water (Log Pow)	1.2 at 25 °C - Regulation (EC) No. 440/2008, Annex A.8 - Bioaccumulation is not expected	

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Endocrine disrupting properties

No additional information available

### 12.7. Other adverse effects

No additional information available

### **SECTION 13: Disposal considerations**

### 13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

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.

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Product/Packaging disposal recommendations

: Disposal must be done according to official regulations.

Additional information

: Do not re-use empty containers.

### **SECTION 14: Transport information**

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

### 14.1. UN number or ID number

Not regulated for transport

### 14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not regulated Proper Shipping Name (IMDG) : Not regulated Proper Shipping Name (IATA) : Not regulated Proper Shipping Name (ADN) : Not regulated Proper Shipping Name (RID) : Not regulated

### 14.3. Transport hazard class(es)

#### **ADR**

Transport hazard class(es) (ADR) : Not regulated

IMDG

Transport hazard class(es) (IMDG) : Not regulated

**IATA** 

Transport hazard class(es) (IATA) : Not regulated

**ADN** 

Transport hazard class(es) (ADN) : Not regulated

**RID** 

Transport hazard class(es) (RID) : Not regulated

### 14.4. Packing group

Packing group (ADR) : Not regulated Packing group (IMDG) : Not regulated Packing group (IATA) : Not regulated Packing group (ADN) : Not regulated Packing group (RID) : Not regulated

### 14.5. Environmental hazards

Other information : No supplementary information available

### 14.6. Special precautions for user

### **Overland transport**

Not regulated

### Transport by sea

Not regulated

### Air transport

Not regulated

### Inland waterway transport

Not regulated

### Rail transport

Not regulated

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### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

### **SECTION 15: Regulatory information**

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

#### **EU-Regulations**

### **REACH Annex XVII (Restriction List)**

EU restriction list (REACH Annex XVII)	
Reference code Applicable on	
3(b)	4-METHYLMORPHOLINE N-OXIDE SOLUTION 50 WT. % IN WATER
40.	4-METHYLMORPHOLINE N-OXIDE

### **REACH Annex XIV (Authorisation List)**

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

### **REACH Candidate List (SVHC)**

Contains no substance(s) listed on the REACH Candidate List

#### **PIC Regulation (Prior Informed Consent)**

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

#### **POP Regulation (Persistent Organic Pollutants)**

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

### Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

### Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

### **Explosives Precursors Regulation (2019/1148)**

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

### **Drug Precursors Regulation (273/2004)**

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)

### **National regulations**

#### Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG).

Observe restrictions according Act on the Protection of Young People in Employment

(JArbSchG).

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1).

Major Accidents Ordinance (12. BlmSchV) : Is listed in the Major Accidents Ordinance (12. BlmSchV)

Major Accidents Ordinance (12. BlmSchV)				
Number	Code	Title	Lower-tier	Upper-tier
1.1.1			5,000 kg	20,000 kg
1.1.2			50,000 kg	200,000 kg
1.1.3			50,000 kg	200,000 kg
1.2.1.1			10,000 kg	50,000 kg
1.2.1.2			50,000 kg	200,000 kg
1.2.2			10,000 kg	50,000 kg

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Major Accidents Ordinance (12. BlmSchV)			
Number	Code	Title Lower-tier	Upper-tier
1.2.3.1		150,000 kg	500,000 kg
1.2.3.2		5,000,000 kg	50,000,000 kg
1.2.4		50,000 kg	200,000 kg
1.2.5.1		10,000 kg	50,000 kg
1.2.5.2		50,000 kg	200,000 kg
1.2.5.3		5,000,000 kg	50,000,000 kg
1.2.6.1		10,000 kg	50,000 kg
1.2.6.2		50,000 kg	200,000 kg
1.2.7		50,000 kg	200,000 kg
1.2.8		50,000 kg	200,000 kg
1.3.1		100,000 kg	200,000 kg
1.3.2		200,000 kg	500,000 kg
1.4.1		100,000 kg	500,000 kg
1.4.2		100,000 kg	500,000 kg
1.4.3		50,000 kg	200,000 kg
2.1		50,000 kg	200,000 kg
2.11		5,000 kg	50,000 kg
2.3.1		2,500,000 kg	25,000,000 kg
2.3.2		2,500,000 kg	25,000,000 kg
2.3.3		2,500,000 kg	25,000,000 kg
2.3.4		2,500,000 kg	25,000,000 kg
2.3.5		2,500,000 kg	25,000,000 kg
2.30		200,000 kg	500,000 kg
2.31			1,000 kg
2.35			1 kg
2.43.3		10,000 kg	100,000 kg
2.7		1,000 kg	2,000 kg
2.8			100 kg

### **Netherlands**

SZW-lijst van kankerverwekkende stoffen

SZW-lijst van mutagene stoffen

SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed

SZW-lijst van reprotoxische stoffen –

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed

### **Denmark**

**Danish National Regulations** : Young people below the age of 18 years are not allowed to use the product

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#### **Poland**

Polish National Regulations

: Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225).

Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797).

The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended).

Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923).

Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154).

Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended).

The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488)

Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended). Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141).

ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891)

### **Spain**

Royal Decree 665/1997

: Is not subject to the Royal Decree 665/1997

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### **SECTION 16: Other information**

Abbreviations and acronyms:		
ACGIH	American Conference of Government Industrial Hygienists	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways	
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 (BOD)	
CAS-No.	Chemical Abstract Service number	
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008	
COD	Chemical oxygen demand (COD)	
CSA	Chemical safety assessment	
DMEL	Derived Minimal Effect level	
DNEL	Derived-No Effect Level	
EC-No.	European Community number	
EC50	Median effective concentration	

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Abbreviations and acr	ronyms:
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
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
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Full text of H- and EUF	Full text of H- and EUH-statements:	
Flam. Sol. 1	Flammable solids, Category 1	
Repr. 2	Reproductive toxicity, Category 2	
H228	Flammable solid.	
H315	Causes skin irritation.	
H319	Causes serious eye irritation.	

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Full text of H- and EUH-statements:	
H335	May cause respiratory irritation.
H361f	Suspected of damaging fertility.

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.