

## MATERIAL SAFETY DATA SHEET

Version Number:- 02

PRODUCT NAME: N-METHYLMORPHOLINE

CAS Number: 109-02-4

**1. IDENTIFICATION:**

**Product Code** : 98182

**Company Name** : ADVENT CHEMBIO PRIVATE LIMITED

**Address** : W-279, MIDC, TTC INDUSTRIAL AREA, THANE-BELAPUR ROAD, RABALE,  
NAVI MUMBAI - 400 701, MAHARASHTRA, INDIA.

**E-mail** : [sales@adventchembio.com](mailto:sales@adventchembio.com)

**WEBSITE** : [www.adventchembio.com](http://www.adventchembio.com)

**Company Phone Number** : +91 77770 84837

**2. HAZARDS IDENTIFICATION:****Hazard classification****Physical hazards**

**Flammable liquids** : Category 2

**Health hazards**

**Acute toxicity** : Category 4

**Skin irritation** : Sub-category 1B

**Serious eye damage** : Category 1

**Labels elements** :

**Hazard symbol** :

**Signal word** : Danger

**Hazard statement** : Highly flammable liquid and vapor.  
: Harmful if swallowed.  
: Causes severe skin burns and eye damage.

**Precautionary statement**

**Prevention** : Obtain special instructions before use.  
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Do not handle until all safety precautions have been read and understood.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.  
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.

**Response** : IF exposed or concerned: Get medical advice/ attention.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.



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- Storage** : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
: Store in a dry & well-ventilated place. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Disposal** : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Other hazards which do not result in GHS classification** : 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.

**3. COMPOSITION/ INFORMATION ON INGREDIENTS:**

Ingredient	CAS Number	Percent	Hazardous
N-Methylmorpholine	109-02-4	NLT 99.0%	Yes

**4. FIRST AID MEASURES:**

- General information** : Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion** : Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
- Inhalation** : Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.  
: Get medical attention if symptoms persist.
- Skin contact** : Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
- Eye contact** : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
- Most important symptoms/effects, acute and delayed** : The most important known symptoms and effects are described in the labelling.
- Indication of immediate medical attention and special treatment needed** : No data available.

**5. FIRE FIGHTING MEASURES:**

- General information** : Flammable liquid and vapor.

**Suitable (and unsuitable) extinguishing media**

- Suitable extinguishing media** : Carbon dioxide (CO2) Foam Dry powder.
- Unsuitable extinguishing media** : For this substance/mixture no limitations of extinguishing agents are given.
- Specific hazards arising from the chemical** : Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Vapor from the solvent may accumulate in container headspace resulting in



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flammability hazard. Heat may cause the containers to explode.

**Special protective equipment and precautions for firefighters**

<b>Special firefighting procedures</b>	:	Fight fire from a protected location. Move containers from fire area if you can do so without risk.
<b>Special protective equipment for fire-fighters</b>	:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**6. ACCIDENTAL RELEASE MEASURES:**

<b>Personal precautions, protective equipment and emergency procedures</b>	:	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid breathing mists or vapors. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.
<b>Methods and material for containment and cleaning up</b>	:	Eliminate all ignition sources if safe to do so. Use only non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.
<b>Notification Procedures</b>	:	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
<b>Environmental precautions</b>	:	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. HANDLING AND STORAGE:**

<b>Precautions for safe handling</b>	:	Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/ face protection. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash hands thoroughly after handling.
<b>Conditions for safe storage, including any incompatibilities</b>	:	Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a dry, well-ventilated place.

**8. EXPOSURE CONTROLS PERSONAL PROTECTION:**

<b>Appropriate engineering controls</b>	:	No data available.
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**Individual protection measures, such as personal protective equipment**

<b>General information</b>	:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an
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	acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.
<b>Eye/face protection</b>	: Wear safety glasses with side shields (or goggles).
<b>Hand protection</b>	: Chemical resistant gloves.
<b>Other</b>	: Wear suitable protective clothing.
<b>Respiratory protection</b>	: In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge.
<b>Hygiene measures</b>	: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

<b>Appearance</b>	: Clear, colorless liquid
<b>Odor</b>	: No data available.
<b>Solubility</b>	: No data available.
<b>Formula</b>	: C <sub>5</sub> H <sub>11</sub> NO
<b>Molecular Weight</b>	: 101.15 g/mol
<b>Density</b>	: 0.919 – 0.921 g/cm <sup>3</sup> at 25°C
<b>pH</b>	: No data available.
<b>% Volatiles by volume @ 21C (70F)</b>	: No data available.
<b>Boiling Point</b>	: 115 - 116 °C at 1.0 hPa
<b>Melting Point</b>	: -66°C
<b>Flash Point</b>	: 12 °C
<b>Vapor Density (Air=1)</b>	: No data available.
<b>Vapor Pressure (mm Hg)</b>	: No data available.
<b>Evaporation Rate (BuAc=1)</b>	: No data available.

**10. STABILITY AND REACTIVITY:**

<b>Reactivity</b>	: Vapours may form explosive mixture with air.
<b>Chemical stability</b>	: Material is stable under ambient conditions.
<b>Possibility of hazardous reactions</b>	: Risk of ignition or formation of inflammable gases or vapours with: Strong oxidizing agents increased reactivity with: acid halides acids
<b>Conditions to avoid</b>	: Warming.
<b>Incompatible materials</b>	: No data available.

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**Hazardous decomposition products** : In the event of fire: see section 5**11. TOXICOLOGICAL INFORMATION:****Information on toxicological effects****Acute toxicity (list all possible routes of exposure)****Oral Product** : LD 50 Oral - Rat - male and female - 1.442 mg/kg**Dermal Product** : LD 50 Dermal - Rabbit - male and female - > 3.000 mg/kg**Inhalation Product** : No data available.**Repeated dose toxicity Product** : No data available.**Skin corrosion/irritation Product** : Causes burns.**Serious eye damage/eye irritation Product** : Causes serious eye damage.**Respiratory or skin sensitization Product** : Buehler Test - Guinea pig  
Result: negative  
(OECD Test Guideline 406)**Carcinogenicity Product** : This substance has no evidence of carcinogenic properties**Germ cell mutagenicity**  
Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
: Result: negative  
Test Type: In vitro mammalian cell gene mutation test  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 482  
Result: negative**Reproductive toxicity Product** : No components toxic to reproduction .**Specific target organ toxicity - single exposure Product** : No data available.**Specific target organ toxicity - repeated exposure Product** : No data available.**Aspiration hazard Product** : No data available.**Other effects** : No data available.

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12. ECOLOGICAL INFORMATION:

Ecotoxicity

Acute hazards to the aquatic environment

Fish Product : LC50 - Leuciscus idus (Golden orfe) - 320 - 460 mg/l - 96 h

Aquatic invertebrates Product : static test EC50 - Daphnia (water flea) - > 100 mg/l - 48 h

Chronic hazards to the aquatic environment

Fish Product : No data available.

Aquatic invertebrates Product : No data available.

Toxicity to Aquatic Plants Product: : No data available.

Persistence and degradability

Biodegradation Product : > 60 % - Moderately (partly) eliminable (DOC reduction 20- 70 %).

BOD/COD ratio Product : No data available.

Bioaccumulative potential

Bioconcentration factor (BCF) Product : No data available on bioaccumulation.

Partition coefficient n-octanol / water (log Kow) Product : No data available.

Mobility in soil : No data available.

Other adverse effects : Discharge into the environment must be avoided.

13. DISPOSAL CONSIDERATION:

Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws. Disposal recommendations are based on uncontaminated material.

Contaminated packaging : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION:

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Environmental hazards
ADR/RID	UN 2535	N-Methylmorpholine	3 (8)	II	No
IMDG	UN 2535	N-Methylmorpholine	3 (8)	II	No
IATA	UN 2535	N-Methylmorpholine	3 (8)	II	No

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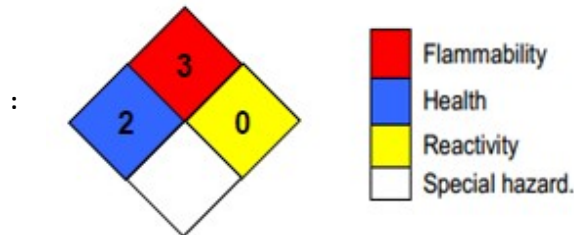
CAS Number: 109-02-4

**15. REGULATORY INFORMATION:**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.  
Safety, health and environmental regulations/legislation specific for the substance or mixture  
No Data Available.

**16. OTHER INFORMATION:**

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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