

Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **MORPHOLINE**

Other name(s): Diethyleneimide oxide; Tetrahydro-p-isoxazine.

Recommended Use of the Chemical and Restrictions on Use Rubber accelerator, solvent, additive to boiler water, waxes and polishes, optical brightener for detergents, corrosion inhibitor, preservation of book paper, organic intermediate.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Flammable liquids - Category 3
Acute Oral Toxicity - Category 4
Acute Dermal Toxicity - Category 4
Acute Inhalation Toxicity - Category 4
Skin Corrosion - Sub-category 1B
Eye Damage - Category 1

SIGNAL WORD: DANGER



Hazard Statement(s):

H226 Flammable liquid and vapour.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.

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Precautionary Statement(s):

Prevention:

P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground or bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating, lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist, vapours, spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves / protective clothing / eye protection / face protection.

Response:

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
P322 Specific measures (see First Aid Measures on Safety Data Sheet).
P363 Wash contaminated clothing before re-use.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P304+P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
P312 Call a POISON CENTER or doctor/physician 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.
P310 Immediately call a POISON CENTER or doctor/physician.
P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:

P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Morpholine	110-91-8	>=99%	H226 H332 H312 H302 H314
Water	7732-18-5	0.5% max.	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

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Inhalation:

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

Skin Contact:

If spilt on large areas of skin or hair, immediately drench with running water and remove clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor. For skin burns, cover with a clean, dry dressing until medical help is available.

Eye Contact:

Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport promptly to hospital or medical centre.

Ingestion:

Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Never give anything by the mouth to an unconscious patient. Seek immediate medical assistance.

Indication of immediate medical attention and special treatment needed:

Treat symptomatically. Can cause corneal burns.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Alcohol resistant foam is the preferred firefighting medium but, if it is not available, fine water spray or water fog can be used.

Hazchem or Emergency Action Code: - 2W

Specific hazards arising from the chemical:

Flammable liquid. May form flammable vapour mixtures with air. Vapour may travel a considerable distance to source of ignition and flash back. Corrosive substance.

Special protective equipment and precautions for fire-fighters:

Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. On burning will emit toxic fumes, including those of oxides of carbon, and oxides of nitrogen. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion. Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:

Shut off all possible sources of ignition. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:

Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal.

7. HANDLING AND STORAGE

Product Name: MORPHOLINE
Substance No: 00000050028

Issued: 08/03/2019
Version: 3

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Precautions for safe handling:

Avoid skin and eye contact and breathing in vapour, mists and aerosols. Vapour may travel a considerable distance to source of ignition and flash back. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well ventilated place. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Morpholine: 8hr TWA = 71 mg/m³ (20 ppm), Sk

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

'Sk' (skin) Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:

Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, CHEMICAL GOGGLES, FACE SHIELD, GLOVES (Long), APRON, RUBBER BOOTS.



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Wear overalls, chemical goggles, face shield, elbow-length impervious gloves, splash apron or equivalent chemical impervious outer garment, and rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

If determined by a risk assessment an inhalation risk exists, wear an organic vapour respirator or an air-supplied respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Colour:	Colourless
Odour:	Amine - like
Solubility:	Miscible in water.
Specific Gravity:	1.00 @20°C
Relative Vapour Density (air=1):	3
Vapour Pressure (20 °C):	11 hPa
Flash Point (°C):	31 (Closed cup)
Flammability Limits (%):	1.4-15.2 (V)
Autoignition Temperature (°C):	275
% Volatile by Volume:	100
Boiling Point/Range (°C):	129 @1013 hPa
Decomposition Point (°C):	>330
pH:	11.2
Viscosity:	2.23 mPa.s @20°C
Partition Coefficient:	log Pow = -2.55
Freezing Point/Range (°C):	-5

10. STABILITY AND REACTIVITY

Reactivity:	Hygroscopic: absorbs moisture or water from surrounding air. Corrodes metals.
Chemical stability:	Stable under normal conditions of use.
Possibility of hazardous reactions:	Hazardous polymerisation will not occur.
Conditions to avoid:	Avoid exposure to heat, sources of ignition, and open flame.
Incompatible materials:	Incompatible with cellulose nitrate , nitromethane , other nitro-compounds , acids , strong oxidising agents , metals .
Hazardous decomposition products:	Oxides of carbon. Oxides of nitrogen. Ammonia.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion:	Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.
Eye contact:	A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.

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Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

Inhalation: Inhalation may cause severe irritation of the nose, throat and respiratory tract. May cause shortness of breath, severe headaches and lung effects.

Acute toxicity:
Oral LD50 (rat): 1738 mg/kg
Dermal LD50 (rabbit): 500 uL/kg
Inhalation LC50 (rat): 8000 ppm/8h

Skin corrosion/irritation: Corrosive (rabbit).
Serious eye damage/irritation: Corrosive (rabbit).
Respiratory or skin sensitisation: Not a skin sensitiser (guinea pig).

Chronic effects: Chronic exposure may result in adverse effects on the liver , kidneys , and respiratory system. This material has been classified by the International Agency for Research on Cancer (IARC) as a Group 3 agent. Group 3 - The agent is not classifiable as to its carcinogenicity to humans.

Mutagenicity: Non-mutagenic in AMES test.
Reproductive toxicity: No information available.
Aspiration hazard: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

Persistence/degradability: The material is readily biodegradable.

Bioaccumulative potential: Not expected to bioaccumulate. Bioconcentration Factor (BCF): <10

Mobility in soil: No information available.

48hr EC50 (Daphnia magna): 45 mg/L
96hr LC50 (rainbow trout): 180 mg/L
96hr LC50 (bluegill sunfish): 350 mg/L

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.



UN No: 2054

Product Name: MORPHOLINE
Substance No: 000000050028

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Transport Hazard Class: 8 Corrosive
Subrisk 1: 3 Flammable Liquid
Packing Group: I
Proper Shipping Name or Technical Name: MORPHOLINE
Hazchem or Emergency Action Code: - 2W

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No: 2054
Transport Hazard Class: 8 Corrosive
Subrisk 1: 3 Flammable liquid
Packing Group: I
Proper Shipping Name or Technical Name: MORPHOLINE

IMDG EMS Fire: F-E
IMDG EMS Spill: S-C

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS. TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft; may be transported by Cargo Aircraft Only.

UN No: 2054
Transport Hazard Class: 8 Corrosive
Subrisk 1: 3 Flammable Liquid
Packing Group: I
Proper Shipping Name or Technical Name: MORPHOLINE

15. REGULATORY INFORMATION

Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Flammable liquids - Category 3
Acute Oral Toxicity - Category 4
Acute Dermal Toxicity - Category 4
Acute Inhalation Toxicity - Category 4
Skin Corrosion - Sub-category 1B
Eye Damage - Category 1

Hazard Statement(s):

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H314 Causes severe skin burns and eye damage.

Poisons Schedule (SUSMP): None allocated.

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This material is listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Supplier Safety Data Sheet; 06/ 2018.

This safety data sheet has been prepared by Ixom Operations Pty Ltd (Toxicology & SDS Services).

Reason(s) for Issue:

5 Yearly Revised Primary SDS

Update in Toxicological Information

Update in Ecological Information

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.