

SAFETY DATA SHEET

MORPHOLINE

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

1.1 Product identifier:	
CAS Number:	110-91-8
EC number:	203-815-1
1.2 SYNONYMS:	• Oxazirane • 1,4-Diazacyclohexane oxide • Piperazine oxide

SECTION 2: Hazards identification:

2.1 Classification of the substance or mixture:	Classification according to Regulation (EC) No 1272/2008 The substance is classified according to the CLP regulation.
2.2 Label elements:	Labelling according to Regulation (EC) No 1272/2008 Flammable liquids (Category 3) Acute toxicity, Oral (Category 4) Acute toxicity, Inhalation (Category 3) Acute toxicity, Dermal (Category 3) Skin corrosion (Category 1B) Serious eye damage (Category 1) Reproductive toxicity (Category 2)
Hazard Pictograms:	
Signal Word:	Danger
Hazard statements:	H226: Flammable liquid and vapor. H302: Harmful if swallowed. H311 + H331: Toxic in contact with skin or if inhaled. H314: Causes severe skin burns and eye damage.

	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Precautionary Statements:	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. P301 + P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405: Store locked up. P501: Dispose of contents/ container to an approved waste disposal plant.
2.3 Other hazards:	
Inhalation:	can cause irritation to the respiratory system, leading to symptoms such as coughing, shortness of breath, and throat discomfort.
Ingestion:	can cause nausea, vomiting, abdominal pain, and potentially more severe effects like central nervous system depression and damage to internal organs.

Skin Contact:	can cause irritation, redness, and in some cases, more severe skin damage or absorption leading to systemic toxicity.
Eye contact:	can cause severe irritation, redness, tearing, and potential damage to the cornea.
Chronic Exposure:	can lead to respiratory issues, liver and kidney damage, nervous system effects, and prolonged skin irritation
Aggravation of pre-existing conditions:	may aggravate pre-existing conditions such as respiratory disorders (e.g., asthma or bronchitis), skin conditions (e.g., dermatitis), and liver or kidney diseases.

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation:	Substances
CAS No:	Description: 110-91-8 MORPHOLINE
Identification number(s):	EC number: 203-815-1

SECTION 4: First aid measures

4.1 Description of first aid measures	
General information:	
After inhalation:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact:	Remove contaminated clothing immediately. Wash with plenty of water. Consult a physician.
After eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. consult a physician.

After swallowing:	Rinse mouth with water. Immediately after ingestion Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed:	Acute symptoms of morpholine exposure include irritation of the eyes, skin, and respiratory system, while delayed effects may include respiratory issues, liver and kidney damage, and central nervous system depression with prolonged or repeated exposure.
4.3 Indication of any immediate medical attention and special treatment needed:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media:	Carbon dioxide. Water spray. Alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture:	Carbon oxides, nitrogen oxides.
5.3 Advice for firefighters:	Wear fully protective suit, safety glasses and respiratory device. Cool tanks/drums with water spray/remove them into safety.
5.4 further information:	no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating
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	to form explosive concentrations. Avoid dust accumulation. Seek medical attention.
6.2 Environmental precautions:	Do not enter this chemical into drains.
6.3 Methods and material for containment and cleaning up:	Take up spill into absorbent material, e.g.: sand, earth, vermiculite, powdered limestone. Scoop absorbed substance into closing containers. Spill must not return in its original container. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:	For use in are with adequate ventilation. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material Do not use in confined spaces. Electrostatic discharge protection. Minimize dust generation and accumulation. Avoid ingestion and inhalation.
7.2 Conditions for safe storage, including any incompatibilities:	Store in original containers. Keep containers securely sealed Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Store in a dry and dark area. Keep away from moisture.
Requirements to be met by storerooms and receptacles:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must

	be carefully resealed and kept upright to prevent leakage.
7.3 Specific end uses:	no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters	
Additional information about design of technical facilities:	A system of local and general exhaust is recommended.
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:	Dust respirator, protective masks, wearing anti chemical gloves, rubber gloves, etc.
General protective and hygienic measures:	Eyes, body and hand protection, maintain indoor air unobstructed. Wear protective equipment.
	Respiratory protection: Required.
Protection of hands:	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. Wash and dry hands.
	Eye protection: Required
Protection of Body:	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties	
General Information	
Appearance: Form:	Liquid
Colour:	Colourless to pale yellow
Odour:	Amine like fishy colour
pH-value:	11
Melting point/Melting range:	-4°C
Boiling point/Boiling range:	129°C
Flammability (solid, gaseous):	Flammable
Ignition temperature:	350°C
Decomposition temperature:	Not determined
Self-igniting:	None
Flash point:	43°C
Danger of explosion:	None
Explosion limits: Lower:	1.5%
Explosion limits: Upper:	7.3%
Vapour pressure:	2.7 hPa at 20 °C
Density at 20 °C:	1.010 g/cm ³
Relative density:	1.010
Vapour density:	3.3
Evaporation rate:	1.4
Solubility in / Miscibility with- water at 20 °C:	Soluble
Partition coefficient:(n- octanol/water)	-0.79
Viscosity:	1.89 cP at 20°C

SECTION 10: Stability and reactivity

10.1 Reactivity	Can react in presence of strong oxidizers.
10.2 Chemical stability	This chemical is stable under storage conditions.
10.3 Possibility of hazardous reactions	Can undergo exothermic reactions when it reacts with acids, oxidizing agents.
10.4 Conditions to avoid	High temperatures, open flames, source of ignition, direct sunlight.

10.5 Incompatible materials	Strong oxidizing agents, strong acids and bases, metals
10.6 Hazardous decomposition products	Nitrogen oxides, ammonia, carbon monoxide, carbon dioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute Toxicity:	LD50 (Oral, Rat): 1.900 mg/kg LD50 (Dermal, Rabbit): 500 mg/kg LC50 (Inhalation Rat): 3.1 mg/l (4 hr)
Skin corrosion/Irritation:	Causes burns
Serious eye damage/irritation:	Causes serious eye damage
Respiratory damage/irritation:	No data available
Ingestion:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive toxicity:	Suspected of damaging fertility.
Specific target organ toxicity - single exposure:	No data available
Specific target organ toxicity - repeated exposure:	No data available
Aspiration hazard:	No data available
Signs and Symptoms of Exposure:	Refer section 2.3
11.2 Additional toxicological information	
Biodegradability:	Readily Biodegradable

SECTION 12: Ecological information

12.1 Toxicity Aquatic toxicity:	LC50(fish): 180 mg/l (96hr) EC50(daphnia): 44.5 mg/l (48 hr) ErC50(algae): 9 mg/l (72 hr)
12.2 Persistence and degradability:	Readily Biodegradable
12.3 Bioaccumulative potential:	low bioaccumulative
12.4 Mobility in soil:	High mobility
12.5 Other adverse effects:	No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods	
Uncleaned packaging Recommendation:	dispose of in accordance with local hazardous waste regulations
Recommended cleansing agents:	Water, isopropyl alcohol, soapy water.

SECTION 14: Transport information

14.1 UN-Number · ADR, ADN, IMDG, IATA:	2054
14.2 UN proper shipping name · ADR, ADN, IMDG, IATA:	MORPHOLINE
14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA :	8
14.4 Packing group · ADR, IMDG, IATA:	3
14.5 Environmental hazards:	None
14.6 Special precautions for user:	Handle responsibly.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Directive 2012/18/EU	Directive 2012/18/EU, under that this substance is classified in listed substances as acute toxic and flammable substances
Named dangerous substances:	This substance is not listed in the annex 1 to the directive.
15.2 Chemical safety assessment:	Chemical assessment has not been carried out.

SECTION 16: Other information

The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information.

However, due to the diversity of information sources and limitations of our knowledge, this document is only for reference. Users should make their

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