Material Safety Data Sheet

Morpholine (RXSOL-19-1382-210)

1. Product and Company Identifaction

Product Name	Morpholine
Part Number	RXSOL-40-1382-210
Synonym	Tetrahydro-2H-1,4-oxazine
Chemical Formula	C4H9NO

Company Details:

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2. Composition / informationon ingredients

Name	CAS #	% by Weight	Chem Formula	R Phrases
Morpholine	110-91-8	100	C_4H_9NO	R10 R20/21/22 R34

Toxicological Data on Ingredients : Morpholine: ORAL (LD50): Acute: 1450 mg/kg [Rat]. 525 mg/kg [Mouse]. DERMAL (LD50): Acute: 500 mg/kg [Rabbit].
VAPOR (LC50): Acute: 11313.7 ppm 4 hour(s) [Rat].

3. Hazards Identification

Potential Acute Health Effects	Very hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or,occasionally, blistering.
Potential Chronic Health Effects	445°C (833°F)Very hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS:Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation.Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin.Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Serious Ingestion	Not available.

5. Fire-fighting Measures

Flammability of the Product	Flammable.
Auto-Ignition Temperature	310°C (590°F)
Flash Points	CLOSED CUP: 35°C (95°F) OPEN CUP: 38°C (100.4°F).
Flammable Limits	LOWER: 1.8% UPPER: 11.2%
Products of Combustion	These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).Fire Hazards in Presence of Various Substances:Not available Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water.
SMALL FIRE	Use DRY chemical powder.
LARGE FIRE	Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto ignition or explosion.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Not Available

6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if witout risk. Absorb with DRY earth, sand or other non combustible material. Do not get water inside container. Do not touch spilled material.Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV.Check TLV on the MSDS and with local authorities.

7. Handling and Storage

Precautions	Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage	Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material.A refrigerated room would be preferable for materials with a flash point lower than37.8°C (100°F).

8. Exposure controls and personal protection

Engineering Control	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 20 CEIL: 30 (ppm) TWA: 70 CEIL: 105 (mg/m3) Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

Physical state and appearance	:	Liquid. (Oily liquid.)
Odor	:	Amine like. (Slight.)
Taste	:	Not available.
Molecular Weight	:	87.12 g/mole
Color		Clear
pH (1% soln/water)	:	Not Available
Boiling Point	:	128.19°C (262.7°F)
Melting Point	:	-4.9°C (23.2°F)
Critical Temperature	:	Not available.
Specific Gravity	:	0.9168 (Water = 1)
Vapor Pressure	:	7 mm of Hg (@ 20°C)
Vapor Density	:	3 (Air = 1)
Volatility	:	100% (v/v).
Odor Threshold	:	0.1 ppm
Water/Oil Dist. Coeff	:	Not available.
Ionicity (in Water)	:	Not available.
Dispersion Properties	:	See solubility in water.
Solubility	:	Easily soluble in cold water.

10. Stability and reactivity

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not Available.
Incompatibility with various substances	Not Available.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	Not Available.

Special Remarks on Corrosivity	Not available.
Polymerization	No

11. Toxicological information

Routes of Entry	Dermal contact. Eye contact. Inhalation. Ingestion
Toxicity to Animals	THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4 HOUR EXPOSURE. Acute oral toxicity (LD50): 525 mg/kg [Mouse]. Acute dermal toxicity (LD50): 500 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 11313.7 ppm 4 hour(s)[Rat].
Chronic Effects on Humans	The substance is toxic to lungs, mucous membranes.
Other Toxic Effects on Humans	Very hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on other Toxic Effects on Humans	Not available.

12. Ecological information

ECOTOXICITY EFFECTS:

ACUTE TOXICITY:	None known
MOBILITY:	NA
PERSISTENCE AND DEGRADABILITY:	None known
BIOACCUMULATIVE POTENTIAL:	Is not known to accumulate

13. Disposal considerations

WASTE TREATMENT:	Dispose of within current local and state regulations. No special method required.
PACKAGING TREATMENT:	Consult federal, state, and local regulations regarding the proper disposal of emptied containers.
RCRA HAZARD CLASS:	NA

14. Transport information

U.S. DEPARTMENT OF TRANSPORTATION

Chemicals Not Hazardous	
PROPER SHIPPING NAME:	Otherwise Indexed (NOI)
HAZARD CLASS:	Not Regulated
ID NUMBER:	NA
LABEL STATEMENT:	None

WATER TRANSPORTATION

Chemicals Not Hazardous	
PROPER SHIPPING NAME:	Otherwise Indexed (NOI)
HAZARD CLASS:	Not Regulated
ID NUMBER:	NA
LABEL STATEMENT:	None

AIR TRANSPORTATION

Chemicals Not Hazardous

PROPER SHIPPING NAME:	Otherwise Indexed
HAZARD CLASS:	Not Regulated
ID NUMBER:	NA
LABEL	None

15. Regulatory information

Preparation does not contain ingredients listed as a dangerous substance in Annex 1 of the EEC directive 67/548.

16. Other information

KEEP OUT OF REACH OF CHILDREN

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