SAFETY DATA SHEET

Creation Date Oct-2013 **Revision Date** Oct-2018 **Revision Number** 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description:	**Morpholine**
Product Grade:	SQ
Cat No. :	Q25685, Q2568C, Q2568H
Synonyms	Tetrahydro-2H-1,4-oxazine; 1-Oxa-4-azacyclohexane
CAS-No	110-91-8
EC-No.	203-815-1
Molecular Formula	C4 H9 N O
Reach Registration Number	-

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company Thermo Fisher Scientific India Pvt. Ltd
403-404, B-wing, Delphi, Hiranandani Business Park,
Powai, Mumbai 400076, INDIA.

E-mail address laboratorysolutions@thermofisher.com

1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30
Chemtrec US: (800)424-9300
Chemtrec EU: 001(202)483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 3

Health hazards

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1

Environmental hazards

Based on available data, the classification criteria are not met

2.2. Label elements

Signal Word **Danger**

Hazard Statements

H226 - Flammable liquid and vapor
H331 - Toxic if inhaled
H311 - Toxic in contact with skin
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage

Precautionary Statements

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
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
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Morpholine	110-91-8	EEC No. 203-815-1	>95	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Flam. Liq. 3 (H226)

Reach Registration Number	-

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Keep eye wide open while rinsing.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately. Immediate medical attention is required. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.

Inhalation If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Move to fresh air. If not breathing, give artificial respiration. Call a physician or Poison Control Center immediately.

Protection of First-aiders Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. Causes burns by all exposure routes. . Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. In the event of fire and/or explosion do not breathe fumes.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx), Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional ecological information. Do not flush into surface water

or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges. Do not taste or swallow. This material should be handled at the biosafety level 2 (BSL2) as required by OSHA Bloodborne Pathogen Rule (29 CFR 1910.1030.7).

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition. Keep in properly labeled containers. Flammables area.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Morpholine	TWA: 10 ppm 8 hr TWA: 36 mg/m³ 8 hr STEL: 20 ppm 15 min STEL: 72 mg/m³ 15 min	STEL: 20 ppm 15 min STEL: 72 mg/m³ 15 min TWA: 10 ppm 8 hr TWA: 36 mg/m³ 8 hr Skin	TWA / VME: 10 ppm (8 heures). restrictive limit TWA / VME: 36 mg/m³ (8 heures). restrictive limit STEL / VLCT: 20 ppm. restrictive limit STEL / VLCT: 72 mg/m³. restrictive limit	TWA: 10 ppm 8 uren TWA: 36 mg/m³ 8 uren STEL: 20 ppm 15 minuten STEL: 72 mg/m³ 15 minuten Huid	STEL / VLA-EC: 20 ppm (15 minutos). STEL / VLA-EC: 72 mg/m³ (15 minutos). TWA / VLA-ED: 10 ppm (8 horas) TWA / VLA-ED: 36 mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Morpholine	TWA: 10 ppm 8 ore. TWA: 36 mg/m³ 8 ore. STEL: 20 ppm 15 minuti. Breve termine STEL: 72 mg/m³ 15 minuti. Breve termine Pelle	TWA: 10 ppm (8 Stunden). AGW - exposure factor 2 TWA: 36 mg/m³ (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK TWA: 36 mg/m³ (8 Stunden). MAK Höhepunkt: 20 ppm	STEL: 20 ppm 15 minutos STEL: 72 mg/m³ 15 minutos TWA: 10 ppm 8 horas TWA: 36 mg/m³ 8 horas Pele	huid STEL: 72 mg/m³ 15 minuten TWA: 36 mg/m³ 8 uren	TWA: 10 ppm 8 tunteina TWA: 36 mg/m³ 8 tunteina STEL: 20 ppm 15 minuutteina STEL: 72 mg/m³ 15 minuutteina Iho

		Höhepunkt: 72 mg/m³ Haut			

Component	Austria	Denmark	Switzerland	Poland	Norway
Morpholine	Haut MAK-KZW: 10 ppm 15 Minuten MAK-KZW: 36 mg/m³ 15 Minuten MAK-TMW: 10 ppm 8 Stunden MAK-TMW: 36 mg/m³ 8 Stunden Ceiling: 10 ppm Ceiling: 36 mg/m³	TWA: 10 ppm 8 timer TWA: 36 mg/m³ 8 timer Hud	Haut/Peau STEL: 20 ppm 15 Minuten STEL: 72 mg/m³ 15 Minuten TWA: 10 ppm 8 Stunden TWA: 36 mg/m³ 8 Stunden	STEL: 72 mg/m³ 15 minutach TWA: 36 mg/m³ 8 godzinach	TWA: 10 ppm 8 timer TWA: 36 mg/m³ 8 timer STEL: 20 ppm 15 minutter. STEL: 54 mg/m³ 15 minutter. Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Morpholine	TWA: 10 ppm TWA: 36.0 mg/m³ STEL : 20 ppm STEL : 72.0 mg/m³	kože TWA-GVI: 10 ppm 8 satima. TWA-GVI: 36 mg/m³ 8 satima. STEL-KGVI: 20 ppm 15 minutama. STEL-KGVI: 72 mg/m³ 15 minutama.	TWA: 10 ppm 8 hr. TWA: 36 mg/m³ 8 hr. STEL: 20 ppm 15 min STEL: 72 mg/m³ 15 min Skin	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³	TWA: 35 mg/m³ 8 hodinách. Potential for cutaneous absorption Ceiling: 70 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Morpholine	TWA: 10 ppm 8 tundides. TWA: 36 mg/m³ 8 tundides. STEL: 20 ppm 15 minutites. STEL: 72 mg/m³ 15 minutites.	TWA: 10 ppm 8 hr TWA: 36 mg/m³ 8 hr STEL: 20 ppm 15 min STEL: 72 mg/m³ 15 min	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³	STEL: 72 mg/m³ 15 percekben. CK TWA: 36 mg/m³ 8 órában. AK lehetséges borön keresztüli felszívódás	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm 8 klukkustundum. TWA: 36 mg/m³ 8 klukkustundum. Skin notation Ceiling: 20 ppm Ceiling: 72 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Morpholine	STEL: 20 ppm STEL: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³	TWA: 10 ppm IPRD TWA: 36 mg/m³ IPRD STEL: 20 ppm STEL: 72 mg/m³	TWA: 10 ppm 8 Stunden TWA: 36 mg/m³ 8 Stunden STEL: 20 ppm 15 Minuten STEL: 72 mg/m³ 15 Minuten	TWA: 10 ppm TWA: 36 mg/m³ STEL: 20 ppm 15 minuti STEL: 72 mg/m³ 15 minuti	TWA: 10 ppm 8 ore TWA: 36 mg/m³ 8 ore STEL: 20 ppm 15 minute STEL: 72 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Morpholine	TWA: 0.5 mg/m³ Skin notation STEL: 1.5 mg/m³ vapor	Ceiling: 72 mg/m³ TWA: 10 ppm TWA: 36 mg/m³	TWA: 10 ppm 8 urah TWA: 36 mg/m³ 8 urah STEL: 20 ppm 15 minutah STEL: 72 mg/m³ 15 minutah	STV: 15 ppm 15 minuter STV: 50 mg/m³ 15 minuter LLV: 10 ppm 8 timmar. LLV: 35 mg/m³ 8 timmar. Hud	TWA: 10 ppm 8 saat TWA: 36 mg/m³ 8 saat STEL: 20 ppm 15 dakika STEL: 72 mg/m³ 15 dakika

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber Neoprene Natural rubber PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Long sleeved clothing impervious clothing Chemical resistant apron Boots Impervious gloves

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing.

For environmental protection remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection.

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	amine-like	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	-5 °C / 23 °F	
Softening Point	No data available	
Boiling Point/Range	126 - 130 °C / 258.8 - 266 °F	@ 760 mmHg
Flash Point	32 °C / 89.6 °F	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 2 vol%	
	Upper 11.2 vol%	
Vapor Pressure	11 mbar @ 20 °C	
Vapor Density	3.0 (Air = 1.0)	(Air = 1.0)
Specific Gravity / Density	0.990	
Bulk Density	Not applicable	Liquid
Water Solubility	soluble	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Morpholine	-2.55

Autoignition Temperature	255 °C / 491 °F	
Decomposition Temperature	No data available	
Viscosity	2.23 cP at 20°C	
Explosive Properties	No information available	explosive air/vapour mixtures possible
Oxidizing Properties	No information available	

9.2. Other information

Molecular Formula	C4 H9 N O
Molecular Weight	87.12

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Hygroscopic

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water. Exposure to air or moisture over prolonged periods.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Nitrogen oxides (NOx). Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Category 4
Dermal	Category 3
Inhalation	Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Morpholine	1050 mg/kg (Rat) 1900 mg/kg (Rat)	310 mg/kg (Rabbit) 500 mg/kg (Rabbit)	8000 ppm (Rat) 8 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs Skin, Respiratory system, Eyes, Gastrointestinal tract (GI), Kidney, Liver.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects See actual entry in RTECS for complete information

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Morpholine	1000 mg/L LC50 96 h 375 - 460 mg/L LC50 96	100 mg/L EC50 = 24 h	28 mg/L EC50 = 96 h	EC50 = 57.0 mg/L 30 min

	h 350 mg/L LC50 96 h			

12.2. Persistence and degradability Readily biodegradable
Persistence Soluble in water, Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Morpholine	-2.55	0.3 - 2.8 OECD 305C

12.4. Mobility in soil The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment No data available for assessment.

12.6. Other adverse effects
Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN 2054
14.2. UN proper shipping name MORPHOLINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 3
14.4. Packing group I

ADR

14.1. UN number UN2054
14.2. UN proper shipping name MORPHOLINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 3
14.4. Packing group I

IATA

14.1. UN number UN 2054
14.2. UN proper shipping name MORPHOLINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 3

14.4. Packing group I

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Morpholine	203-815-1	-		X	X	-	X	X	X	X	X

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Morpholine	WGK 2	Class I : 20 mg/m³ (Massenkonzentration)

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Legend

CAS - Chemical Abstracts Service
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
TWA - Time Weighted Average
ACGIH - American Conference of Governmental Industrial Hygienists
IARC - International Agency for Research on Cancer
DNEL - Derived No Effect Level
PNEC - Predicted No Effect Concentration
RPE - Respiratory Protective Equipment
LD50 - Lethal Dose 50%
LC50 - Lethal Concentration 50%
EC50 - Effective Concentration 50%
NOEC - No Observed Effect Concentration
POW - Partition coefficient Octanol:Water
PBT - Persistent, Bioaccumulative, Toxic
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - Volatile Organic Compounds

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date	Oct-2013
Next Revision Date	Oct-2023
Revision Summary	SDS section 1 updated and update of Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet