

MORPHOLINE

Version 1.2 Revision Date: 06/15/2021 SDS Number: 400001020150 Date of last issue: 01/13/2021
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SECTION 1. IDENTIFICATION

Product name : MORPHOLINE

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : TechInfo: (281) 719-7780

E-mail address of person responsible for the SDS : Global_Product_EHS_HPP@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on useRecommended use : Corrosion inhibitor
Intermediate

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

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
Short-term (acute) aquatic hazard : Category 3

GHS label elements

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Hazard pictograms



Signal word

: Danger

Hazard statements

: H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H311 + H331 Toxic in contact with skin or if inhaled.
 H314 Causes severe skin burns and eye damage.
 H361 Suspected of damaging fertility or the unborn child.
 H402 Harmful to aquatic life.

Precautionary statements

: **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/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.
 P261 Avoid breathing mist or vapours.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
 P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.

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P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
morpholine	110-91-8	90 - 100

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.

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If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : None known.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, : Use personal protective equipment.

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- protective equipment and emergency procedures : Remove all sources of ignition.
Evacuate personnel to safe areas.
Refer to protective measures listed in sections 7 and 8.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Neutralise with acid.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).
Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : No smoking.
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.
Observe label precautions.
Keep in properly labelled containers.
- Materials to avoid : Do not store near acids.
- Further information on : Stable under normal conditions.

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storage stability

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
morpholine	110-91-8	TWA	20 ppm	ACGIH
		TWA	20 ppm 70 mg/m ³	OSHA Z-1
		TWA	20 ppm 70 mg/m ³	NIOSH REL
		ST	30 ppm 105 mg/m ³	NIOSH REL
		TWA	20 ppm 70 mg/m ³	OSHA P0
		STEL	30 ppm 105 mg/m ³	OSHA P0

Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
- Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
- Hand protection
Directive : Use gloves approved to relevant standards e.g. EN 16523 (Europe), EN 374 (Europe), F739 (US).
- Material : butyl-rubber
Break through time : > 480 min
- Material : Silver Shield(R) gloves
Break through time : > 480 min
- Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : colourless

Odour : ammoniacal

Odour Threshold : No data is available on the product itself.

pH : 11
Concentration: 250 g/l

Freezing point : 23.2 °F / -4.9 °C

Boiling point : 264 °F / 129 °C
(1,013 hPa)

Flash point : 90 °F / 32 °C
Method: DIN 51755 Part 1, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data is available on the product itself.

Flammability (liquids) : No data is available on the product itself.

Upper explosion limit / Upper flammability limit : 11.2 - 15.2 %(V)

Lower explosion limit / Lower flammability limit : 1.4 - 1.8 %(V)

Vapour pressure : 9.8 hPa (68.5 °F / 20.3 °C)
Method: OECD Test Guideline 104

Relative vapour density : 3

Relative density : 1.0007 (68 °F / 20 °C)

Density : 1.0007 g/cm³ (68 °F / 20 °C)

Solubility(ies)
Water solubility : completely miscible

Solubility in other solvents : Solvent: Methanol
Description: soluble

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	Solvent: Diethylether
	Description: soluble
	Solvent: Acetone
	Description: soluble
Partition coefficient: n-octanol/water	: log Pow: -0.84 (77 °F / 25 °C) pH: 10.3
	log Pow: -2.55 (77 °F / 25 °C) pH: 7
Auto-ignition temperature	: 491 °F / 255 °C Method: DIN Method, other
Thermal decomposition	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	
Viscosity, dynamic	: 2.23 mPa.s (68 °F / 20 °C)
Explosive properties	: No data is available on the product itself.
Oxidizing properties	: None.
Molecular weight	: 87.1 g/mol
Particle size	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Vapours may form explosive mixture with air.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: None known.
Hazardous decomposition products	: No decomposition if stored and applied as directed.
Hazardous decomposition products	: carbon monoxide carbon dioxide Nitrogen oxides (NO _x)

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 1,685 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 3.01 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : 501.25 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Components:**

morpholine:
Species: Rabbit
Assessment: Causes burns.
Method: OECD Test Guideline 404
Result: Causes burns.
GLP: no

Serious eye damage/eye irritation**Components:**

morpholine:
Species: Rabbit
Result: Risk of serious damage to eyes.
Assessment: Risk of serious damage to eyes.
Method: OECD Test Guideline 405

Respiratory or skin sensitisation

No data available

Assessment: No data available

Germ cell mutagenicity**Components:**

morpholine:
Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium and E. coli

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Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: Not classified due to inconclusive data.

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 482
Result: negative

Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Components:

morpholine:
Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Application Route: Oral
Dose: 500 mg/kg
Result: negative

Components:

morpholine:
Germ cell mutagenicity- : Animal testing did not show any mutagenic effects.
Assessment

Carcinogenicity**Components:**

morpholine:
Species: Rat, male and female
Application Route: Inhalation
Exposure time: 52 weeks
Activity duration: 6 h
Dose: 0/36/181/543 mg/m³
Frequency of Treatment: 5 days/week
NOAEL: > 543 mg/m³

Method: OECD Test Guideline 453
Result: negative

Carcinogenicity - : No data available
Assessment

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed

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human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components:**morpholine:
Effects on fertility

: Species: Rat, male and female
Application Route: Oral
Dose: 60/200/600 mg/kg bw/day
General Toxicity - Parent: No observed adverse effect level: 60 mg/kg body weight
General Toxicity F1: No observed adverse effect level: 600 mg/kg body weight
Method: OECD Test Guideline 443
Remarks: Information given is based on data obtained from similar substances.

Components:morpholine:
Effects on foetal
development

: Test Type: Pre-natal
Species: Rat, females
Application Route: Oral
Dose: 75/250/750 mg/kg bw/day
Duration of Single Treatment: 14 d
General Toxicity Maternal: No observed adverse effect level: 75 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 750 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
Remarks: Information given is based on data obtained from similar substances.

Components:morpholine:
Reproductive toxicity -
Assessment

: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT - single exposure

No data available

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STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

morpholine:

Species: Rat, male and female

NOEC: 36 mg/m³

Application Route: Inhalation

Test atmosphere: vapour

Exposure time: 104 weeks 6 h

Number of exposures: 5 d/week

Dose: 0/10/50/150 ppm

Method: OECD Test Guideline 452

Species: Rat, male and female

NOAEL: 60 mg/kg

Application Route: oral (gavage)

Dose: 60/200/600 mg/kg bw/day

Method: Subchronic toxicity

Remarks: Information given is based on data obtained from similar substances.

Repeated dose toxicity - : No data available
Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

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Further information**Product:**

Remarks: Solvents may degrease the skin.

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

morpholine:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:

morpholine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 45 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Components:

morpholine:

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 64.6 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 31 mg/l
Exposure time: 72 h
Test substance: Fresh water
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

Components:

morpholine:

Toxicity to fish (Chronic toxicity) : NOEC (Fish): > 1 mg/l
Test substance: Fresh water

Components:

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morpholine:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 8.134 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : No data available

Components:

morpholine:

Toxicity to microorganisms : EC20 (activated sludge): > 1,000 mg/l
Exposure time: 0.5 h
Test Type: static test
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

morpholine:

Biodegradability : Test Type: aerobic
Inoculum: Sewage (STP effluent)
Result: Readily biodegradable.
Biodegradation: 93 %
Exposure time: 25 d
Method: OECD Test Guideline 301E

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

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BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Components:

morpholine:

Photodegradation : Test Type: Air
Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

morpholine:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 2.8
Exposure time: 42 d
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.Partition coefficient: n-octanol/water - Product : log Pow: -0.84 (77 °F / 25 °C)
pH: 10.3log Pow: -2.55 (77 °F / 25 °C)
pH: 7**Mobility in soil**

Mobility : No data available

Components:

morpholine:

Distribution among environmental compartments : Koc: 0.2401
Koc: 7.356

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

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Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No.	: UN 2054
Proper shipping name	: Morpholine
Class	: 8
Subsidiary risk	: 3
Packing group	: I
Labels	: Corrosive, Flammable Liquids
Packing instruction (cargo aircraft)	: 854

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Packing instruction : 850
 (passenger aircraft)

IMDG-Code

UN number : UN 2054
 Proper shipping name : MORPHOLINE

Class : 8
 Subsidiary risk : 3
 Packing group : I
 Labels : 8 (3)
 EmS Code : F-E, S-C
 Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**49 CFR**

UN/ID/NA number : UN 2054
 Proper shipping name : Morpholine

Class : 8
 Subsidiary risk : 3
 Packing group : I
 Labels : CORROSIVE, FLAMMABLE LIQUID
 ERG Code : 132
 Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Acute toxicity (any route of exposure)
 Reproductive toxicity
 Skin corrosion or irritation
 Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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California Prop. 65

WARNING: This product can expose you to chemicals including 2-methoxyethanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

AIIC : On the inventory, or in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

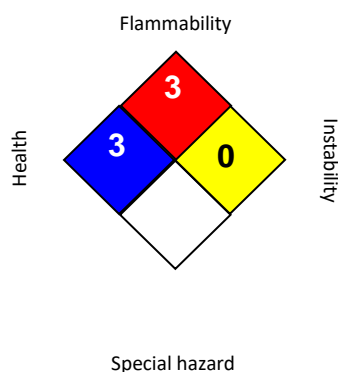
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

MORPHOLINE

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SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH	*	3
FLAMMABILITY		3
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date : 06/15/2021

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 NIOSH REL : USA. NIOSH Recommended Exposure Limits
 OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average
 NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday

OSHA P0 / TWA : 8-hour time weighted average
 OSHA P0 / STEL : Short-term exposure limit
 OSHA Z-1 / TWA : 8-hour time weighted average

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and

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behaviour should be determined by the user and made known to handlers, processors and end users.

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