

ANHUI HUAERTAI CHEMICAL CO., LTD.

Xiangyu Chemical Zone, Dongzhi, Chizhou, Anhui, China

Email: global@ahhet.com

TEL: 0086 13156638665

SAFETY DATA SHEET

Section 1 Product and Company Identification

>Product Identifier

Product Name	Morpholine
Synonyms	-
CAS No	110-91-8
EC No.	203-815-1
Molecular Formula	C4H9NO

>Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer.
Uses Advised Against	Please consult manufacturer.

>Details of the Supplier of the Safety Data Sheet

Applicant Name	Anhui Huertai Chemical Co., Ltd.
Applicant Address	Xiangyu Town, Dongzhi County, Anhui Province
Applicant Post Code	247260
Applicant Telephone	05665299018
Applicant Fax	05665299138
Applicant E-mail	eileen_lyy@163.com
Supplier Names	Anhui Huertai Chemical Co., Ltd.
Supplier Address	Xiangyu Town, Dongzhi County, Anhui Province
Supplier Post Code	247260
Supplier Telephone	05665299018
Supplier Fax	05665299138
Supplier E-mail	eileen_lyy@163.com

>Emergency Phone Number

Emergency Phone Number	05665299119
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Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the ninth revised edition):

>GHS Hazard Class

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Flammable Liquids	Category 3
Acute Toxicity -Oral	Category 4
Skin Corrosion/Irritation	Category 1
Eye Damage/Irritation	Category 1
Acute Toxicity-Inhalation	Category 3

>GHS Label Elements

Pictogram



Signal Word

Danger

>Hazard Statements

H226	Flammable liquid and vapour
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

>Precautionary Statements

Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264+P265	Wash hands and other contact area thoroughly after handling. Do not touch eyes.

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- 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/hearing protection.

Response

- P316** Get emergency medical help immediately.
- P317** Get medical help.
- P320** Specific treatment is urgent (see measures on this label).
- P321** Specific treatment (see measures on this label).
- P330** Rinse mouth.
- P363** Wash contaminated clothing before reuse.
- P301+P317** IF SWALLOWED: Get medical help.
- P304+P340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P361+P364** Take off immediately all contaminated clothing and wash it before reuse.
- P370+P378** In case of fire: Use suitable extinguishing medium to extinguish.
- P301+P330+P331** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P302+P361+P354** IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
- P303+P361+P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
- P305+P354+P338** IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

- P405** Store locked up.
- P403+P233** Store in a well-ventilated place. Keep container tightly closed.
- P403+P235** Store in a well-ventilated place. Keep cool.

Disposal

- P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 Composition/Information on Ingredients

Component	CAS No.	EC No.	Concentration (weight percent, %)
Morpholine	110-91-8	203-815-1	≥99.8
Water	7732-18-5		0.2

Section 4 First Aid Measures

> Description of First Aid Measures

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

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- Eye Contact** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
- Skin Contact** Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
- Ingestion** Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
- Inhalation** Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.

Protecting of First-aiders Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

> Most Important Symptoms and Effects, both Acute and Delayed

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media Dry chemical, carbon dioxide or alcohol-resistant foam.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter or spread fire.

> Specific Hazards Arising from the Substance or Mixture

- 1 Will form explosive mixtures with air.
- 2 Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/ or vapour concentration.
- 3 Vapours may travel to source of ignition and flash back.
- 4 Liquid and vapour are flammable.
- 5 Fire may produce irritating, poisonous or corrosive gases.
- 6 Containers may explode when heated.
- 7 Fire exposed containers may vent contents through pressure relief valves.
- 8 May expand or decompose explosively when heated or involved in fire.

> Advice for Firefighters

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

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Section 6 Accidental Release Measures

> Personal Precautions, Protective Equipment and Emergency Procedures

- 1 Avoid breathing vapors and contacting with skin and eye.
- 2 Beware of vapours accumulating to form explosive concentrations.
- 3 Vapours can accumulate in low areas.
- 4 Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
- 5 Ensure adequate ventilation. Remove all sources of ignition.
- 6 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 7 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

- 1 Avoid inhalation of vapors.
- 2 Use only non-sparking tools.
- 3 To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
- 4 Use explosion proof equipment.
- 5 Handling is performed in a well ventilated place.
- 6 Wear suitable protective equipment.
- 7 Avoid contact with skin and eyes.
- 8 Keep away from heat/sparks/open flames/hot surfaces.
- 9 Take precautionary measures against static discharges.

> Precautions for Storage

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

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Section 8 Exposure Controls /Personal Protection

>Control Parameters

Occupational Exposure Limit Values

Component	Country/Region	Limit Value-Eight Hours		Limit Value-Short Term	
		ppm	mg/m3	ppm	mg/m3
Morpholine 110-91-8	USA-OSHA	20	70	-	-
	South Korea	20	70	30	105
	Ireland	10	36	20	72
	Germany(AGS)	10	36	20	72
	Denmark	20	70	40	140
	Australia	20	71	-	-

Biological Limit Values

No information available

Monitoring Methods

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

>Engineering Controls

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

>Personal Protection Equipment

Eye Protection Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US)).

Hand Protection Wear protective gloves (such as butyl rubber),passing the tests according to EN 374(EU).US F739 or AS/NZS 2161.1 standard.

Respiratory protection If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK(EN 14387) respirator cartridges.

Skin and Body Protection Wear fire/flame resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance:Colorless transparant liquid

Odor:No information available

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Odor Threshold: No information available	pH: 10.6(20℃)
Melting Point/Freezing Point(°C): -5	Initial Boiling Point and Boiling Range (C): 129
Flash Point(°C)(Closed Cup): 31	Evaporation Rate: No information available
Flammability: Not applicable	Upper/lower explosive limits[% (v/v)]: Upper limit:15.2;Lower limit:1.8
Vapor Pressure (KPa): 1.07(20℃)	Relative Vapour Density(Air=1): 3.00
Relative Density(Water=1): 1.0(20℃)	Solubility: Miscible with water
n-Octanol/Water Partition Coefficient: -0.86	Auto-Ignition Temperature(C): 310
Decomposition Temperature (°C): No information available	
Kinematic Viscosity (mm/s): No information available	Particle characteristics: Not applicable

Section 10 Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability	Stable under proper operation and storage conditions.
Possibility of Hazardous	No information available
Reactions Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	No information available
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

>Acute Toxicity

Component	CAS No.	LD50(Oral)	LD50(Dermal)	LC50(Inhalation,4h)
Morpholine	110-91-8	1450mg/kg(Rat)	497mg/kg(Rabbit)	7.8mg/L(Rat)

>Skin Corrosion/Irritation

Causes severe skin burns and eye damage(Category 1)(Morpholine)

>Serious Eye Damage/Irritation

Causes serious eye damage(Category 1)(Morpholine)

>Skin Sensitization

No information available

>Respiratory Sensitization

No information available

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>Germ Cell Mutagenicity

No information available

>Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	110-91-8	Morpholine	Category 3	Not Listed

>Reproductive Toxicity

No information available

>Reproductive Toxicity (Additional)

No information available

>STOT-Single Exposure

No information available

>STOT-Repeated Exposure

No information available

>Aspiration Hazard

No information available

Section 12 Ecological Information

>Acute Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Morpholine	110-91-8	LC ₅₀ :380mg/L (96h)(Fish)	EC ₅₀ :45mg/L(48h)	ErC ₅₀ :28mg/L(96h)

>Chronic Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Morpholine	110-91-8	No information available	NOEC:5.0mg/L	NOEC:31mg/L

>Others

Persistence and Degradability

No information available

Bioaccumulative Potential

No information available

Mobility in Soil

No information available

Results of PBT and vPvB Assessment

Morpholine does not meet the criteria for PBT and vPvB according to Regulation(EC) No 1907/2006, annex XIII.

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Section 13 Disposal Considerations

Waste Chemicals Contaminated Packaging Before disposal should refer to the relevant national and local laws and regulation. Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

Disposal Recommendations Refer to Waste chemicals and Contaminated packaging.

Section 14 Transport Information

Transporting Label



Marine pollutant	No
UN Number	2054
UN Proper Shipping Name	MORPHOLINE
Transport Hazard Class	8
Transport Subsidiary Hazard Class	3
Packing Group	I

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Morpholine	V	V	V	✓	V	V	V	V	V

【EINECS】 European Inventory of Existing Commercial Chemical Substances.

[TSCA] United States Toxic Substances Control Act Inventory.

[DSL] Canadian Domestic Substances List.

[IECSC] China Inventory of Existing Chemical Substances.

[NZIoC] New Zealand Inventory of Chemicals.

[PICCS] Philippines Inventory of Chemicals and Chemical Substances.

[KECI] Existing and Evaluated Chemical Substances.

[AICS] Australia Inventory of Chemical Substances.

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[ENCS]

Existing And New Chemical Substances.

Note

"√" Indicates that the substance included in the regulations

"x" That no date or included in the regulations

Section 16 Additional Information

Creation Date	Feb.24,2022
Revision Date	Feb.24,2022
Reason for Revision	-

>Disclaimer

This Safety Data Sheet(SDS) was prepared according to UN GHS (the 9th revised edition).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 the limitations of our knowledge,this document is only for user's reference.Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.