SAFETY DATA SHEET

Monoethanolamine

Jiaxing Jinyan Chemical Co., Ltd.

SDS

- **According to GHS (Seventh Revised Edition)**

Section 1 Product and Company Identification

> Product Identifier

Product Name	Monoethanolamine
Synonyms	-
CAS No.	141-43-5
EC No.	205-483-3
Molecular Formula	C_2H_7NO

> 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	Jiaxing Jinyan Chemical Co., Ltd.
Application Address	No.555 Waihuan Road(W), Jiaxing Port District,Jiaxing City, Zhejiang Province
Applicant Post Code	314201
Applicant Telephone	+86-573-8556555
Applicant Fax	+86-573-85586055
Applicant E-mail	jxjy555@jxjychemical.com
Supplier Name	Jiaxing Jinyan Chemical Co., Ltd.
Supplier Address	No.555 Waihuan Road(W), Jiaxing Port District,Jiaxing City, Zhejiang Province
Supplier Post Code	314201
Supplier Telephone	+86-573-8556555
Supplier Fax	+86-573-85586055
Supplier E-mail	jxjy555@jxjychemical.com

> Emergency Phone Number

Emergency Phone Number	+86-573-85586568

Section 2 Hazards Identification

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

> GHS Hazard Class

Flammable Liquids	Category 4
Acute Toxicity – Oral	Category 4

Acute Toxicity – Dermal	Category 4
Skin Corrosion/Irritation	Category 1
Acute Toxicity – Inhalation	Category 4
Specific Target Organ Toxicity (Single Exposure)	Category 3

> GHS Label Elements

Pictogram

Signal Word **Danger**

> Hazard Statements

H227	Combustible liquid
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation

> Precautionary Statements

Prevention

P210	Keep away from heat, hot surfaces, sparks,open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
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.

Response

P312	Call a POISON CENTER/doctor,if you feel unwell.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P301+P312	IF SWALLOWED: Call a POISON CENTER/ doctor,if you feel unwell.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P362+P364	Take off contaminated clothing and wash it before reuse.
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.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

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

Disposal

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

Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Monoethanolamine	99	141-43-5	205-483-3

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.
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 Fire may produce irritating, poisonous or corrosive gases.

2 Containers may explode when heated.

3 Fire exposed containers may vent contents through pressure relief valves.

4 May expansion 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.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1 Ensure adequate ventilation. Remove all sources of ignition.
2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3 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 Handling is performed in a well ventilated place.
2 Wear suitable protective equipment.
3 Avoid contact with skin and eyes.
4 Keep away from heat/sparks/open flames/ hot surfaces.
5 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.

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
Monoethanolamine 141-43-5	USA - OSHA	3	6	-	-
	South Korea	3	8	6	15
	Ireland	1	2.5	3	7.6
	Germany (AGS)	2	5.1	4	10.2

	Denmark	1	2.5	2	5
	Australia	3	7.5	6	15

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 160.1~GBZ/T 160.81-2004 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 transparent liquid

Odor: No information available

Odor Threshold: No information available

pH: 12.1

Melting Point/Freezing Point (℃): 4

Initial Boiling Point and Boiling Range (℃): 171

Flash Point (℃)(Closed Cup): 85

Evaporation Rate: No information available

Flammability: Not applicable

Upper/lower explosive limits[%(v/v)]: Upper limit: 17; Lower limit: 5.5

Vapor Pressure (MPa): 53Pa

Relative Vapour Density(Air = 1): 2.1

Relative Density(Water=1): 1.02

Solubility: Miscible with water

n-Octanol/Water Partition Coefficient: -1.31

Auto-Ignition Temperature(℃): 410

Decomposition Temperature (℃): No information available

Kinematic Viscosity (mm^2/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 Reactions	No information available
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.	LD_{50}(Oral)	LD_{50}(Dermal)	LC_{50}(Inhalation, 4h)
Monoethanolamine	141-43-5	1720mg/kg(Rat)	No information available	No information available

> Skin Corrosion/Irritation

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

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	141-43-5	Monoethanolamine	Not Listed	Not Listed

> Reproductive Toxicity

No information available

> Reproductive Toxicity (Additional)

No information available

> STOT-Single Exposure

May cause respiratory irritation(Category 3)(Monoethanolamine)

> STOT-Repeated Exposure

No information available

> Aspiration Hazard

No information available

Section 12 Ecological Information

> Acute Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Monoethanolamine	141-43-5	LC_{50}: 329mg/L (96h)(Fish)	EC_{50}: 97mg/L (48h)	ErC_{50}: 2.5mg/L (72h)

> Chronic Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Monoethanolamine	141-43-5	No information available	NOEC: 0.85mg/L	NOEC: 1.0mg/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	Monoethanolamine does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations

Waste Chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated Packaging	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 section 13.1and 13.2.

Section 14 Transport Information

Transporting Label

Marine pollutant	None
UN Number	2491
UN Proper Shipping Name	ETHANOLAMINE
Transport Hazard Class	8
Transport Subsidiary Hazard Class	None

Packing Group Ⅲ

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Monoethanolamine	√	√	√	√	√	√	√	√	√

【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.
【ENCS】 Existing And New Chemical Substances.

Note
"√" Indicates that the substance included in the regulations
"×" That no data or included in the regulations

Section 16 Additional Information

Creation Date 2018/08/13
Revision Date 2018/08/13
Reason for Revision -

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 7th 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.