

FSUT3160

Triethanolamine

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

产品说明:
Product Description: 三乙醇胺
Triethanolamine

Cat No. : T/3160/17, T/3160/08
Synonyms 2,2',2''-Nitrilotriethanol; TEA
CAS No 102-71-6
Molecular Formula C6 H15 N O3

Supplier **UK entity/business name**
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

Emergency Telephone Number Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid Viscous liquid

Appearance
Light yellow

Odor
Ammonia-like

Emergency Overview
May be harmful if swallowed. Air sensitive. Hygroscopic.

Classification of the substance or mixture

Acute Oral Toxicity

Category 5

Label Elements

None required

Hazard Statements

H303 - May be harmful if swallowed

Precautionary Statements

Prevention

P201 - Obtain special instructions before use

P270 - Do not eat, drink or smoke when using this product

P202 - Do not handle until all safety precautions have been read and understood

P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Storage

P403 - Store in a well-ventilated place

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Hygroscopic.

Health Hazards

May be harmful if swallowed.

Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. . Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Other Hazards

Toxicity to Soil Dwelling Organisms. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Triethanolamine	102-71-6	<=100
Diethanolamine	111-42-2	<=0.5

SECTION 4. FIRST AID MEASURES**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation

Remove to fresh air. Get medical attention immediately if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects

None reasonably foreseeable.

Self-Protection of the First Aider

No special precautions required.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Use personal protective equipment as required. Ensure adequate ventilation.

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up

Sweep up and shovel into suitable containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE**Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep under nitrogen. Store under an inert atmosphere. Protect from moisture.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control Parameters**

Component	China	Taiwan	Thailand	Hong Kong
Diethanolamine	-	TWA: 3 ppm TWA: 13 mg/m ³	TWA: 1 mg/m ³	-

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Triethanolamine	TWA: 5 mg/m ³			-	
Diethanolamine	TWA: 1 mg/m ³ Skin	(Vacated) TWA: 3 ppm (Vacated) TWA: 15 mg/m ³	TWA: 3 ppm TWA: 15 mg/m ³	-	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH - NIOSH - National Institute for Occupational Safety and Health

Exposure Controls**Engineering Measures**

Triethanolamine

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. .

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	> 360 minutes	-	EN 374	(minimum requirement)
Nitrile rubber				
PVC				
Butyl rubber	> 240 minutes	0.35 mm		

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.

Skin and body protection Long sleeved clothing

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

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: Particle filter

Small scale/Laboratory use Maintain adequate ventilation
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light yellow	
Physical State	Liquid Viscous liquid	
Odor	Ammonia-like	
Odor Threshold	No data available	
pH	10.5	15 g/L water
Melting Point/Range	21 °C / 69.8 °F	
Softening Point	No data available	
Boiling Point/Range	360 °C / 680 °F	
Flash Point	190 °C / 374 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 3.6 Vol% Upper 7.2 Vol%	
Vapor Pressure	<0.01 mmHg @ 20 °C	
Vapor Density	5.14	(Air = 1.0)
Specific Gravity / Density	1.1245	
Bulk Density	Not applicable	Liquid

SAFETY DATA SHEET**Triethanolamine**

Water Solubility	freely soluble
Solubility in other solvents	No information available
Partition Coefficient (n-octanol/water)	
Component	log Pow
Triethanolamine	-2.53
Diethanolamine	-2.46
Autoignition Temperature	325 - °C / 617 - °F
Decomposition Temperature	No data available
Viscosity	600 mPa.s at 25 °C
Explosive Properties	No information available
Oxidizing Properties	No information available

Molecular Formula	C6 H15 N O3
Molecular Weight	149.19

SECTION 10. STABILITY AND REACTIVITY

Stability	Hygroscopic. Air sensitive.
Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to Avoid	Incompatible products. Excess heat. Exposure to air. Exposure to light. Exposure to moist air or water.
Materials to avoid	Strong oxidizing agents. Acids. Metals.
Hazardous Decomposition Products	Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO ₂). Hydrogen cyanide (hydrocyanic acid). Formaldehyde.

SECTION 11. TOXICOLOGICAL INFORMATION**Product Information****(a) acute toxicity;**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Triethanolamine	LD50 = 4190 mg/kg (Rat)	>16 mL/kg (Rat) >2000 mg/kg (Rabbit)	
Diethanolamine	LD50 = 780 mg/kg (Rat)	LD50 = 11.9 mL/kg (Rabbit)	

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(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

No information available

(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

The table below indicates whether each agency has listed any ingredient as a carcinogen

SAFETY DATA SHEET**Triethanolamine**

Component	EU	UK	Germany	IARC
Diethanolamine				Group 2B

(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 None known.

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

Symptoms / effects, both acute and delayed No information available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Triethanolamine	LC50: 10600 - 13000 mg/L, 96h flow-through (Pimephales promelas) LC50: > 1000 mg/L, 96h static (Pimephales promelas) LC50: 450 - 1000 mg/L, 96h static (Lepomis macrochirus)		EC50: = 169 mg/L, 96h (Desmodesmus subspicatus) EC50: = 216 mg/L, 72h (Desmodesmus subspicatus)	EC50 > 10000 mg/L 30 min
Diethanolamine	Pimephales promelas: LC50: 140 mg/L/96h	EC50: = 55 mg/L, 48h (Daphnia magna)	EC50: 2.1 - 2.3 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 7.8 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 73 mg/L 5 min EC50 > 16 mg/L 16 h

Persistence and Degradability Persistence Readily biodegradable
Persistence is unlikely.

Bioaccumulative Potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Triethanolamine	-2.53	<3.9 dimensionless
Diethanolamine	-2.46	No data available

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

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

Waste from Residues/Unused Products	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
Contaminated Packaging	Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport Not Regulated

IMDG/IMO Not regulated

IATA Not regulated

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION**International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Triethanolamine	-	-	X	X	203-049-8	X	X	X	X	X	X	KE-25940
Diethanolamine	X	-	X	X	203-868-0	X	X	X	X	X	X	KE-20959

National Regulations

Component	Toxic Chemical Substances Control Act
Diethanolamine 111-42-2 (≤0.5)	Class IV (50 wt%)

SECTION 16. OTHER INFORMATION

Creation Date 03-Nov-2010
Revision Date 04-Apr-2024
Revision Summary SDS sections updated.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend**CAS** - Chemical Abstracts Service**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**WEL** - Workplace Exposure Limit**ACGIH** - American Conference of Governmental Industrial Hygienists**DNEL** - Derived No Effect Level**RPE** - Respiratory Protective Equipment**LC50** - Lethal Concentration 50%**NOEC** - No Observed Effect Concentration**PBT** - Persistent, Bioaccumulative, Toxic**TWA** - Time Weighted Average**IARC** - International Agency for Research on Cancer**PNEC** - Predicted No Effect Concentration**LD50** - Lethal Dose 50%**EC50** - Effective Concentration 50%**POW** - Partition coefficient Octanol:Water**vPvB** - very Persistent, very Bioaccumulative**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road**OECD** - Organisation for Economic Co-operation and Development**BCF** - Bioconcentration factor**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code**MARPOL** - International Convention for the Prevention of Pollution from Ships**ATE** - Acute Toxicity Estimate**VOC** - (Volatile Organic Compound)**Key literature references and sources for data**<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

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End of Safety Data Sheet