

ALFAAL04486

## Triethanolamine

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

<b>产品说明:</b> <b>Product Description:</b>	<b>三乙醇胺</b> <b>Triethanolamine</b>
<b>Cat No. :</b>	<b>L04486</b>
<b>Synonyms</b>	2,2',2''-Nitrilotriethanol; TEA
<b>CAS No</b>	102-71-6
<b>Molecular Formula</b>	C6 H15 N O3
<b>Supplier</b>	Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
<b>Emergency Telephone Number</b>	For information <b>US</b> call: 001-800-227-6701 / <b>Europe</b> call: +32 14 57 52 11 Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99 <b>CHEMTREC</b> Tel. No. <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887
<b>E-mail address</b>	begel.sdsdesk@thermofisher.com
<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	No Information available

### SECTION 2. HAZARD IDENTIFICATION

<b>Physical State</b> Liquid Viscous liquid	<b>Appearance</b> Light yellow	<b>Odor</b> Ammonia-like
<b>Emergency Overview</b> 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

## Triethanolamine

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 (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**

No information available.

## Triethanolamine

**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 <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	-

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

**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**

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

## Triethanolamine

## 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 compatibility, 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

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

**Partition Coefficient (n-octanol/water)**

<b>Component</b>	<b>log Pow</b>
Triethanolamine	-2.53
Diethanolamine	-2.46
<b>Autoignition Temperature</b>	325 - °C / 617 - °F
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	600 mPa.s at 25 °C
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

<b>Molecular Formula</b>	C6 H15 N O3
<b>Molecular Weight</b>	149.19

**SECTION 10. STABILITY AND REACTIVITY**

<b>Stability</b>	Hygroscopic. Air sensitive.
<b>Hazardous Reactions</b>	None under normal processing.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to air. Exposure to light. Exposure to moist air or water.
<b>Materials to avoid</b>	Strong oxidizing agents. Acids. Metals.
<b>Hazardous Decomposition Products</b>	Nitrogen oxides (NO <sub>x</sub> ). Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). 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;**

<b>Respiratory</b>	Based on available data, the classification criteria are not met
<b>Skin</b>	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

Component	EU	UK	Germany	IARC
Diethanolamine				Group 2B

## Triethanolamine

(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	Pimephals prome: 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 Chemical waste generators must determine whether a discarded chemical is classified as a

**Triethanolamine**

<b>Products</b>	hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
<b>Contaminated Packaging</b>	Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.
<b>Other Information</b>	Waste codes should be assigned by the user based on the application for which the product was used.

**SECTION 14. TRANSPORT INFORMATION**

<b>Road and Rail Transport</b>	Not Regulated
<b>IMDG/IMO</b>	Not regulated
<b>IATA</b>	Not regulated
<b>Special Precautions for User</b>	No special precautions required

**SECTION 15. REGULATORY INFORMATION****International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDL), 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**

<b>Prepared By</b>	Health, Safety and Environmental Department
<b>Creation Date</b>	03-Nov-2010
<b>Revision Date</b>	25-Apr-2024
<b>Revision Summary</b>	New emergency telephone response service provider.

**Training Advice**

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

**Legend**

**Triethanolamine**

**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**

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

**End of Safety Data Sheet**