

Section 1. Identification

GHS product identifier : Triethanolamine (TEA 99)
Chemical name : Triethanolamine
Product type : Liquid.
Use of the substance/ mixture : Formulation into mixture
 Use as an intermediate
 Use in construction products
 Gas scrubber
 Water treatment chemicals
 Metal working fluids
 Component of a Polyurethane System
 Use in cleaning agents
 Laboratory chemicals
Supplier : Servochem L.L.C.
 439 Al Aweer Road, Ras Al Khor,
 P.O. Box# 7124,
 Dubai, UAE
Emergency telephone number : . +971 43331693
 Website: www.servochem.com,
 E-Mail: info@servochem.com

Section 2. Hazards identification

Classification of the substance or mixture : Not classified.
GHS label elements
Signal word : No signal word.
Hazard statements : No known significant effects or critical hazards.
Precautionary statements
Prevention : Not applicable.
Response : Not applicable.
Storage : Not applicable.
Disposal : Not applicable.
Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : Triethanolamine
Other means of identification : Ethanol, 2,2',2"-nitrilotris-; TRIETHANOLAMINE; 2,2',2"-Trihydroxyethylamine; Tris (2-hydroxyethyl)amine; trolamine; Ethanol, 2,2',2"-nitrilotri-; ETHANOL, 2,2',2"-NITRILOTIS-; TRIS(BETA-HYDROXYETHYL)AMINE; NITRILOTRIETHANOL; 2, 2',2"-NITRILOTIS(ETHANOL); Trihydroxytriethylamine

CAS number/other identifiers

CAS number : 102-71-6
EC number : 203-049-8

Ingredient name	%	CAS number
Triethanolamine	>99	102-71-6

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Ingestion** : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Inhalation** : No specific data.
- Ingestion** : No specific data.
- Skin** : No specific data.
- Eyes** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Specific treatments** : No specific treatment.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 30 to 45°C (86 to 113°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limits
Triethanolamine	ACGIH TLV (United States, 3/2020). TWA: 5 mg/m ³ 8 hours.
2,2',2''-nitrilotriethanol	ACGIH TLV (United States, 3/2020). TWA: 5 mg/m ³ 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: safety glasses with side-shields.

Skin protection

Hand protection : 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. > 8 hours (breakthrough time): polyvinyl chloride (PVC) (0.5 mm), butyl rubber (0.5 mm)

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Hygroscopic.]

Color : Colorless. Yellowish. Brown.

Odor : Characteristic.

Odor threshold : Not available.

pH : 10.5 [Conc. (% w/w): 10%]

Melting point/freezing point : 21.57°C (70.8°F)

Boiling point : 335.4°C (635.7°F)

Flash point : Closed cup: 185°C (365°F)

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : <0.005 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 3.6%
Upper: 7.2%

Vapor pressure : <0.0013 kPa (<0.01 mm Hg) [room temperature]

Vapor density : 5.1 [Air = 1]

Relative density : 1.1

Density : 1.1258 g/cm³ [20°C (68°F)]

Solubility : Easily soluble in the following materials: cold water and hot water.

Partition coefficient: n-octanol/water : -1

Section 9. Physical and chemical properties

Auto-ignition temperature : 324°C (615.2°F)
Decomposition temperature : 342.85 to 359.85°C (649.1 to 679.7°F)
SADT : Not available.
Viscosity : Dynamic (room temperature): 590.5 mPa·s (590.5 cP)

Aerosol product

Type of aerosol : Not applicable.
Heat of combustion : Not available.
Ignition distance : Not applicable.
Enclosed space ignition - Time equivalent : Not applicable.
Enclosed space ignition - Deflagration density : Not applicable.
Flame height : Not applicable.
Flame duration : Not applicable.

Section 10. Stability and reactivity

Chemical stability : The product is stable.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on the likely routes of exposure

Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Eye contact : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.
Ingestion : No specific data.
Skin contact : No specific data.
Eye contact : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2',2''-nitrilotriethanol	LD50 Dermal	Rabbit	>10000 mg/kg	-
	LD50 Oral	Guinea pig	5300 mg/kg	-
	LD50 Oral	Rat	7.39 g/kg	-
	LD50 Oral	Rat - Male	6400 mg/kg	-
	LD50 Oral	Rat	7.39 g/kg	-
Triethanolamine				

Conclusion/Summary : Based on available data, the classification criteria are not met.

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
Triethanolamine	Eyes - Mild irritant	Rabbit	-	10 mg	-
	Eyes - Severe irritant	Rabbit	-	20 mg	-
	Skin - Mild irritant	Human	-	72 hours 15 mg I	-
	Skin - Severe irritant	Mouse	-	50 %	-
	Skin - Mild irritant	Rabbit	-	24 hours 560 mg	-

Conclusion/Summary

- Skin** : Based on available data, the classification criteria are not met.
- Eyes** : No known significant effects or critical hazards.
- Respiratory** : No known significant effects or critical hazards.

Sensitization

Not available.

Conclusion/Summary

- Skin** : No known significant effects or critical hazards.
- Respiratory** : No known significant effects or critical hazards.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2',2"-nitritotriethanol	Chronic NOAEL Dermal	Rat	125 mg/kg	-

- Conclusion/Summary** : Based on available data, the classification criteria are not met.

Carcinogenicity

Not available.

- Conclusion/Summary** : No carcinogenic effect.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
2,2',2"-nitritotriethanol	-	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative

- Conclusion/Summary** : No mutagenic effect.

Teratogenicity

Not available.

- Conclusion/Summary** : No known significant effects or critical hazards.

Reproductive toxicity

Not available.

- Conclusion/Summary** : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Ecotoxicity : This product shows a low bioaccumulation potential.

Aquatic and terrestrial toxicity

Product/ingredient name	Result	Species	Exposure
2,2',2''-nitrilotriethanol	Acute EC50 512 mg/l Fresh water	Algae	72 hours
	Acute EC50 609.98 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute EC50 609.88 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 11800 mg/l Fresh water	Fish	96 hours
	Chronic NOEC 16 mg/l Fresh water	Crustaceans	21 days
	Chronic NOEC 16000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 609.98 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 11800000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 16000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
Triethanolamine			

Conclusion/Summary : Based on available data, the classification criteria are not met.

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2,2',2''-nitrilotriethanol	Photolysis	50 % - 342 days	-	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2,2',2''-nitrilotriethanol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Triethanolamine	-1	<3.9	low
2,2',2''-nitrilotriethanol	-2.3	<3.9	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex I/II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

National Inventory List :

- Australia inventory (AICS):** All components are listed or exempted.
- China inventory (IECSC):** All components are listed or exempted.
- Japan inventory (ENCs):** All components are listed or exempted.
- Japan inventory (ISHL):** All components are listed or exempted.
- Korea inventory:** All components are listed or exempted.
- Malaysia Inventory (EHS Register):** All components are listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
- Philippines inventory (PICCS):** All components are listed or exempted.
- Taiwan Chemical Substances Inventory (TCSI):** All components are listed or exempted.
- Thailand inventory:** Not determined.
- Turkey inventory:** All components are listed or exempted.
- United States inventory (TSCA 8b):** All components are listed or exempted.
- Vietnam inventory:** All components are listed or exempted.
- Europe inventory:** All components are listed or exempted.
- Canada inventory:** All components are listed or exempted.

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

United States

California Prop. 65

Section 15. Regulatory information

WARNING: This product can expose you to Diethanolamine, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
2,2'-Iminodiethanol	Yes.	No.	-	-

Chemical Weapons : Not listed
Convention List Schedule I
Chemicals

Chemical Weapons : Not listed
Convention List Schedule II
Chemicals

Chemical Weapons : Listed
Convention List Schedule III
Chemicals

Section 16. Other information

History

Date of printing : 14/06/2020

Date of issue/Date of revision : 14/06/2020

Date of previous issue : 16/11/2018

Version : 3.0

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC Code = International Bulk Chemical Code
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

▣ Indicates information that has changed from previously issued version.

Notice to reader

The information contained in the Safety Data Sheet is at the date of its issuance to the best of our knowledge correct according to the data available to us. The information is meant as a guideline for safe use, handling, disposal, storage and transport of products and does not imply any warranty (not implied nor explicitly) or specification. The Supplier shall to the extent permitted by law not be liable for any error or incorrectness in the information contained in this Safety Data Sheet. The information relates exclusively to the specified products, which may not be suitable for combination with other materials or use in processes other than those specifically described here.