

# SAFETY DATA SHEET



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## TRIETHANOLAMINE

**SDS No. M0198**

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Triethanolamine

Synonyms: TEA; 2,2',2"-Nitrilotriethanol; 2,2,2-Trihydroxytriethylamine; Trihydroxyethylamine; Triethanolamin; Tris(beta-hydroxyethyl)amine

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

### 2. HAZARDS IDENTIFICATION



**Classification**

Eye Irritation: GHS Category 2A

**Label Elements**

Signal Word: WARNING!

Hazard Statements:

- H303 – may be harmful if swallowed.
- H316 – Causes mild skin irritation
- H320 – Causes eye irritation.
- H335 – May cause respiratory irritation.

Precautionary Statements:

- P232 – Protect from moisture..
- P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

**Emergency Overview**

Causes irritation to eyes and skin. May cause irritation to the digestive system. May cause liver and kidney damage. May cause dermatitis. Target Organs: Kidneys, liver, eyes, and skin.

HMIS Rating:

Health – 2 Flammability – 1 Physical Hazard – 1 PPE – User supplied

Clear focus. Consistent results. Complete confidence.

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Triethanolamine	102-71-6	>98%	Yes

### 4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Get medical help immediately. Do not induce vomiting unless directed by medical personnel. If vomiting occurs naturally, have victim lean forward. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person.

Skin Contact: Remove any contaminated clothing. Wash skin with water for at least 15 minutes. Get medical attention.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Notes to Physician: Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard

Auto-ignition Temperature: 315° C (599° F)

Flash Point: 179° C (354° F)

Flammable Limits: Lower Limit – 1.3 vol %, Upper Limit – 8.5 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (nitrogen oxides, carbon monoxide, and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

Fire Fighting Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

National Fire Protective Association: Health - 2, Flammability - 1, Reactivity - 1

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

### 6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Keep material from entering drain systems. Always use proper personal protective equipment as described in section 8.

### 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store in aluminum containers. Protect from moisture, air, and light.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use appropriate gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 5 mg/m<sup>3</sup> TWA  
 NIOSH – None  
 OSHA Final PELs – None

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Colorless to yellow viscous liquid.

Odor: Weak ammonia-like odor

Molecular Formula: (HOCH<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>N

Molecular Weight: 149.19

Auto-ignition Temperature: 315° C (599° F)

Flash Point: 179° C (354° F)

Flammable Limits: Lower Limit – 1.3 vol %, Upper Limit – 8.5 vol %

pH: 10.5 (15 g/l H<sub>2</sub>O).

Boiling Point: 335° C

Freezing/Melting Point: 21° C

Decomposition Temperature: >325° C

Specific Gravity: 1.125 g/cm<sup>3</sup>

Vapor Density (Air=1): 5.4

Vapor Pressure: 3.59E-006 mm Hg @ 25 deg C.

Evaporation Rate (Butyl acetate = 1): 2.4

Viscosity: 601 cps 20° C

Solubility: Soluble

## 10. STABILITY AND REACTIVITY

Stability: Air sensitive. Moisture sensitive. Light sensitive. Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid: Light, moisture, exposure to air, excess heat.

Incompatibility With Various Substances: Strong oxidizing agents, strong acids, aluminum, copper, copper alloys, zinc.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

## 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: May cause respiratory tract irritation. Inhalation of vapors will cause coughing or breathing difficulty. Inhalation of vapor from heated material or mist may cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing.

INGESTION HAZARD: May cause gastrointestinal irritation with nausea, vomiting, and diarrhea.

SKIN CONTACT HAZARD: May cause skin irritation. Prolonged and/or repeated contact may cause irritation and/or

dermatitis. Causes redness and pain. 100% triethanolamine was required to produce an irritant reaction in nonscarified skin. The highest non-irritant concentration was reported to be 50% triethanolamine.

EYE CONTACT HAZARD: Causes eye irritation.

Chronic Exposure Hazards: Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage. Oral and dermal administration of triethanolamine to laboratory animals produced liver, kidney, and nerve damage (scattered degeneration in the myelin sheath of individual nerves).

Animal Toxicity:

Draize test, rabbit, eye: 20 mg Severe;

Draize test, rabbit, eye: 10 mg Mild;

Draize test, rabbit, skin: 560 mg/24H Mild;

Oral, mouse: LD50 = 5846 mg/kg;

Oral, rabbit: LD50 = 2200 mg/kg;

Oral, rat: LD50 = 4920 uL/kg;

Skin, rabbit: LD50 = >20 mL/kg;

Skin, rat: LD50 = >16 mL/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Tumorigenic effects have been reported in lab animals..

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: Mutations in Human Cells = 100 umol/L.

Neurotoxicity: No information available.

## 12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead Minnow: 5600 mg/L; 96H; LC50 No data available;

Environmental Fate: No information found. Do not empty into drains.

## 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

Not regulated for transportation.

## 15. REGULATORY INFORMATION

US Federal Regulations:

TSCA: CAS# 102-71-6 is listed on the TSCA Inventory.

Health and Safety Reporting List: Effective 4/13/89, Sunset 12/19/95.

Chemical Test Rules: CAS# 102-71-6: Not listed.

Section 12b: Not listed.

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS# 102-71-6; no RQ listed

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 102-71-6 – immediate

Section 313: Triethanolamine (CAS# 102-71-6) is not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Clean Air Act: CAS# 102-71-6 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 102-71-6 is not listed as a Hazardous Substance. It is a Priority Pollutant. It is a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 102-71-6 is on the following state right-to-know lists: Pennsylvania, Minnesota, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

Canada:

DSL/NDSL: CAS# 102-71-6 is listed on Canada's DSL list.

WHMIS: This material has a WHMIS classification of D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 102-71-6 is listed on Canada's Ingredient Disclosure List.

DSCCL (EEC):

Hazard Symbols: Xi

Risk Phrases: R36/38 – Irritating to skin and eyes.

Safety Phrases: S26 – In case of contact with eyes, rinse with plenty of water and seek medical attention; S36/37 – Wear suitable protective clothing and gloves; S39 – Wear eye and face protection.

WGK (Water Danger/protection): CAS# 102-71-6: 1

## 16. OTHER INFORMATION

Originally Prepared: 1/1/2006

Last Revised: 1/5/2012 – converted to GHS format.

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