

Safety Data Sheet

1. IDENTIFICATION

Product Identifier:	Triethanolamine, 20-100% v/v
Product Code(s):	T1008, T1011, T1012, T1029
Synonyms:	TEA; 2,2,2-Nitrioltriethanol; Tris(2-hydroxyethyl)amine
Recommended Use:	For manufacturing, industrial, and laboratory use only. For use as a solvent or process fluid.
Uses Advised Against:	Not for food, drug, or household use.
Supplier:	Rocky Mountain Reagents, Inc. 4621 Technology Drive, Golden, CO 80403 Phone: (303) 762-0800 Fax: (303) 762-1240
Emergency Phone Number:	For health emergency call Poison Control: (800) 222-1222.

2. HAZARDS IDENTIFICATION

Hazard Classifications:	This product is classified as not hazardous under OSHA's Hazard Communication Standard, 29 CFR 1910.1200 (HCS) and the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS). However, all chemicals handled and used in the workplace should be treated with caution.
Signal Word:	Not applicable.
Hazard Statements:	Not applicable.
Pictograms:	Not applicable.
Precautionary Statements:	
Prevention:	Not applicable.
Response:	Not applicable.
Storage:	Not applicable.
Disposal:	Not applicable.
Hazards Not Otherwise Classified:	May cause skin sensitization. May affect genetic material.
Toxicity Statement:	Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Triethanolamine	2,2,2-Nitrioltriethanol	102-71-6	C ₆ H ₁₅ NO ₃	21.9 – 100
Water	-	7732-18-5	H ₂ O	0 – 78.1

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
- Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center if symptoms occur.
- Skin Contact:** Wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.
- Eye Contact:** Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if symptoms occur.
- General Advice:** Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that medical personnel and those providing first aid are aware of the material(s) involved and take precautions to protect themselves.
- Symptoms and Effects:** Irritation, sensitization, nausea, vomiting, diarrhea, coughing, wheezing. May affect liver, kidneys, and internal organs. May be mutagenic. May cause allergic reactions.
- Immediate Medical Care/
Special Treatment:** Treat symptomatically.

5. FIREFIGHTING MEASURES

- Suitable Extinguishing Media:** Water spray, dry powder, alcohol resistant foam, carbon dioxide.
- Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream as it may scatter and spread fire.
- Hazardous Combustion Products:** Carbon oxides, nitrogen oxides.
- Specific Hazards:** Combustible if exposed to heat or flames.
- Special Protective Equipment/
Precautions for Firefighters:** As in any fire, wear MSHA/NIOSH approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear. Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk. In the event of fire and/or explosion, do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Protective Equipment:

Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, clothing, and combustible materials.

Emergency Procedures:

In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

Methods for Containment:

Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Keep sources of ignition away from spilled materials. Product should not be released to the environment. Contain and recover liquid when possible.

Methods for Cleanup:

Keep sources of ignition away from spilled material. Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Neutralize residues with a dilute acetic acid solution. Clean contaminated surface thoroughly. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:

Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work areas. Avoid contact with skin, eyes, clothing, and sources of ignition. Take precautionary measures against static discharge. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with moisture. Limit exposure to light. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Observe all warnings and precautions listed for this product.

Storage:

Store in a dry, ventilated area above 20 °C. Keep from freezing. Keep out of light. Keep away from heat and sources of ignition. Store in a segregated and approved area away from incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal feed. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Triethanolamine: ACGIH (TLV): 5 mg/m³

Engineering Controls:

Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Measures:

Eye/Face Protection:

Wear safety glasses with side shields or goggles and a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

Specific Requirements for Personal Protective Equipment: Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless, transparent, viscous liquid.

Odor: Slight, ammoniacal.

Odor Threshold: No information found.

Formula Weight: 149.19 (as $C_6H_{15}NO_3$)

pH: 10.5 – 11.5 (1 M solution at 25 °C)

Melting/Freezing Point: ≤ 20.5 °C

Boiling Point/Range: ≤ 335 °C

Decomposition Temperature: No information found.

Flash Point: 179.4 °C (as $C_6H_{15}NO_3$)

Auto-ignition Temperature: 315 °C (as $C_6H_{15}NO_3$)

Flammability: Combustible.

Flammability/Explosive Limits: Lower: 1.3% v/v
Upper: 8.5% v/v

Solubility: Miscible with water, alcohols, acetone, ether, chloroform, benzene.

Vapor Pressure: 0.015 mmHg at 20 °C

Vapor Density: 5.15 (Air = 1)

Specific Gravity: 1.124 (Water = 1)

Evaporation Rate: No information found.

Viscosity: No information found.

Partition Coefficient (n-octanol/water): -1.00

10. STABILITY AND REACTIVITY

Reactivity Data:	Combustible. See Section 9.
Chemical Stability:	Stable under normal conditions. Sensitive to light, moisture.
Conditions to Avoid:	Heat, flame, sparks, light, moisture, incompatible materials.
Incompatible Materials:	Oxidizing agents, acids, metals.
Hazardous Decomposition Products:	Carbon oxides, nitrogen oxides.
Possibility of Hazardous Reactions:	May react vigorously, violently, or explosively if exposed to extreme thermal conditions or to the incompatible materials listed above.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure:	Inhalation, ingestion, skin contact, eye contact.
Acute Effects:	May cause irritation if swallowed, inhaled, absorbed through the skin, or exposed to the eyes. Excessive ingestion may cause internal organ effects.
Chronic Effects:	Prolonged or repeated exposure may cause skin sensitization, liver damage, kidney damage, and mutagenic effects.
Toxicological Data:	LD50 Oral, Rat: 5530 mg/kg LD50 Oral, Rabbit: 2200 mg/kg LD50 Dermal, Rabbit: > 20,000 mg/kg
Symptoms of Exposure:	Irritation, sensitization, nausea, vomiting, diarrhea, coughing, wheezing.
Carcinogenic Effects:	This product is not expected to cause cancer.
IARC:	3 – Not classifiable as to its carcinogenicity to humans

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	EC50 Water Flea (<i>Daphnia magna</i>): 610 mg/L 48 h LC50 Fathead Minnow (<i>Pimephales promelas</i>): >10,610 mg/L 96 h
Persistence and Degradability:	Readily biodegradable.
Environmental Effects:	Not expected to be hazardous to the environment. However, the possibility of an environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
	Partition Coefficient (n-octanol/water): -1.00

13. DISPOSAL INFORMATION

Disposal Instructions: Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers. All wastes must be handled in accordance with local, state, and federal regulations.

Contaminated Packaging: Because emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: No information found.

14. TRANSPORT INFORMATION

DOT: Not regulated.

Other Transport Precautions: No information found.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is not considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: Not applicable.

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	No
Immediate Hazard	No
Delayed Hazard	No
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: Not applicable.

CERCLA Reportable Quantities: Not applicable.

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s)

16. OTHER INFORMATION

Disclaimer:

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Update of Section 9, 15 over 08/12/2015 version.