



TRIETHANOLAMINE

1. Product Identification

Synonyms: 2,2',2"-Nitrilotriethanol; daltogen; trolamine; TEA; triethylolamine

CAS No.: 102-71-6

Molecular Weight: 149.19

Chemical Formula: (HOCH₂CH₂)₃N

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
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Triethanolamine	102-71-6	99 - 100%
Yes		

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION AND SEVERE EYE IRRITATION.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)

Flammability Rating: 1 - Slight
Reactivity Rating: 1 - Slight
Contact Rating: 3 - Severe
Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES
Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:

No adverse effects expected since triethanolamine has a low vapor pressure.

Ingestion:

May cause burns in the mouth, pharynx, and esophagus, abdominal pain, nausea, vomiting and diarrhea.

Skin Contact:

May cause irritation, redness, and pain, especially on prolonged or repeated contact.

Eye Contact:

Corrosive. Contact causes severe irritation, burns, redness, and pain. May cause irritation, redness, pain, and corneal damage.

Chronic Exposure:

Repeated ingestion has caused kidney and liver damage in animals.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Not expected to require first aid measures.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

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

5. Fire Fighting Measures

Fire:

Flash point: 179C (354F) OC

Autoignition temperature: 315C (599F)

Flammable limits in air % by volume:

lel: 1.3; uel: 8.5

(uel value estimated).

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

Fire Extinguishing Media:

Dry chemical, alcohol foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool. Water can also be used to flush material from fire and to dilute spills to non-combustible mixtures. Water or foam may cause frothing.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Avoid contact with copper and copper alloys. Material is suitably handled in stainless steel equipment. Do not use aluminum for storage of aqueous solutions. Outside or detached storage is preferred. Isolate from acidic materials. May separate and freeze below 16C (60F). Thaw and mix before sampling or using. Do not store above 43C (110F)

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- ACGIH Threshold Limit Value (TLV): 5 mg/m³ (TWA)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, wear a

supplied air, full-facepiece respirator, airtight hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). This substance has unknown warning properties. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless to light yellow, viscous liquid.

Odor:

Slight ammonia odor.

Solubility:

Infinitely soluble.

Specific Gravity:

1.13 @ 20C/4C

pH:

10.5

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

335C (635F)

Melting Point:

21.6C (72F) Super cools easily.

Vapor Density (Air=1):

5.1

Vapor Pressure (mm Hg):

< 0.01 @ 20C (68F)

Evaporation Rate (BuAc=1):

< 1

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Darkens on exposure to air or light.

Hazardous Decomposition Products:

Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Copper, copper alloys, galvanized iron, acids, and oxidizers

Conditions to Avoid:

Heat, ignition sources, moisture, incompatibles.

11. Toxicological Information

Oral rat LD50: 4920 mg/kg; skin rabbit LD50: > 20 mL/kg;

Irritation data: Skin rabbit: 560 mg/24H mild; eye rabbit: 20 mg severe

Investigated as a tumorigen and a mutagen.

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Triethanolamine (102-71-6)	No	No	3

12. Ecological Information

Environmental Fate:

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material may leach into groundwater. When released into the soil, this material is not expected to evaporate significantly. When released into the soil, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. This material has a log octanol-water partition coefficient of less than 3.0. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by dry and wet deposition. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Environmental Toxicity:

Freshwater Fish Species Data: 96 Hr LC50 Pimephales promelas: 11800 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 450-1000 mg/L [static]

Water Flea Data: 24 Hr EC50 Daphnia magna: 1386 mg/L

Microtox data: 30 min EC50 Pseudomonas putida: >10000 mg/L

Freshwater Algae Data: 72 Hr EC50 Scenedesmus subspicatus: 216 mg/L; 96 Hr EC50 Scenedesmus subspicatus: 169 mg/L

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product

may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                TSCA  EC   Japan
Australia
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Triethanolamine (102-71-6)                Yes  Yes  Yes
Yes

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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                Korea  --Canada--
Phil.                                     DSL   NDSL
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Triethanolamine (102-71-6)                Yes   Yes   No
Yes

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-----\Federal, State & International Regulations - Part 1\-----
313-----
Ingredient                                -SARA 302-  -SARA
Chemical Catg.                            RQ      TPQ      List
-----
Triethanolamine (102-71-6)                No     No     No     No

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-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                -RCRA-  -TSCA-
CERCLA  261.33  8(d)
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Triethanolamine (102-71-6)                No     No     No
Chemical Weapons Convention: Yes  TSCA 12(b): No  CDTA: No
SARA 311/312: Acute: Yes  Chronic: No  Fire: No  Pressure: No
Reactivity: No  (Pure / Liquid)

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Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **2** Flammability: **1** Reactivity: **0**

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION AND SEVERE EYE IRRITATION.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing vapor.

Keep container closed.

Use with adequate ventilation.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3, 11, 12.

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