

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Tromethamine

Other means of identification

Synonyms: TRIS (Base), Tris(hydroxymethyl) aminomethane
CAS No.: 77-86-1

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name: Quality Environmental Containers, Inc.
Address: 607 Industrial Park Road
Beaver, WV 25813

Telephone: Customer Service: 304-255-3900

E-mail: info@qecusa.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

2. Hazard(s) identification

Hazard Classification

Not classified

Label Elements

Hazard Symbol: No symbol
Signal Word: No signal word.
Hazard Statement: Not applicable
Precautionary Statements Not applicable

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Substances

Composition Comments: The components are not hazardous or are below required disclosure limits.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Rinse mouth. Call a POISON CENTER/doctor if you feel unwell.

Inhalation: Move to fresh air. Get medical attention if symptoms persist. If breathing stops, provide artificial respiration.

Skin Contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before reuse. Destroy contaminated clothing and shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if symptoms persist.

Most important symptoms/effects, acute and delayed

Symptoms: Irritating to eyes, respiratory system and skin.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, dry powder or carbon dioxide.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Dust may form explosive mixture with air. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures: | ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Use personal protective equipment. Keep upwind. Ventilate closed spaces before entering them. Avoid inhalation of dust. See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. |
| Methods and material for containment and cleaning up: | Sweep up and place in a clearly labeled container for chemical waste. Avoid dust formation. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spills for later disposal. |
| Notification Procedures: | Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved. |
| Environmental Precautions: | Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. |

7. Handling and storage

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| Precautions for safe handling: | Use personal protective equipment as required. Do not taste or swallow. Avoid conditions which create dust. Dust clouds may be explosive under certain conditions. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Avoid inhalation of dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment. |
| Conditions for safe storage, including any incompatibilities: | Keep containers tightly closed. Keep in a cool, well-ventilated place. Store in a dry place. |

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

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| General information: | Good general ventilation (typically 10 air changes per hour) should be used. 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. An eye wash and safety shower must be available in the immediate work area. |
| Eye/face protection: | Use tight fitting goggles if dust is generated. |
| Skin Protection | |
| Hand Protection: | Chemical resistant gloves |
| Other: | Wear appropriate clothing to prevent repeated or prolonged skin contact. |

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| Respiratory Protection: | In case of inadequate ventilation use suitable respirator. |
| Hygiene measures: | Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse. |

9. Physical and chemical properties

Appearance

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| Physical state: | Solid |
| Form: | Crystalline Powder |
| Color: | White, Pale yellow |
| Odor: | Slight characteristic odor |
| Odor threshold: | No data available. |
| pH: | 10.3 - 10.5 (25 °C) (0.05 molar solution) |
| Melting point/freezing point: | 165 - 173 °C |
| Initial boiling point and boiling range: | 288 °C |
| Flash Point: | No data available. |
| Evaporation rate: | No data available. |
| Flammability (solid, gas): | No data available. |
| Upper/lower limit on flammability or explosive limits | |
| Flammability limit - upper (%): | No data available. |
| Flammability limit - lower (%): | No data available. |
| Explosive limit - upper (%): | No data available. |
| Explosive limit - lower (%): | No data available. |
| Vapor pressure: | No data available. |
| Vapor density: | No data available. |
| Density: | No data available. |
| Relative density: | No data available. |
| Solubility(ies) | |
| Solubility in water: | 0.55 g/l (20 °C) |
| Solubility (other): | acetone: 20 g/l cyclohexane: 0.1 g/l ethyl acetate: 0.5 g/l ethylene glycol: 79.1 g/l methanol: 26 g/l |
| Partition coefficient (n-octanol/water): | -1.56 |
| Auto-ignition temperature: | No data available. |
| Decomposition temperature: | No data available. |
| Viscosity: | No data available. |
| Other information | |
| Bulk density: | 1,500 kg/m ³ |
| Molecular weight: | 121.14 g/mol (NH ₂ C(CH ₂ OH) ₃) |

10. Stability and reactivity

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| Reactivity: | No dangerous reaction known under conditions of normal use. |
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| Chemical Stability: | Material is stable under normal conditions. |
| Possibility of hazardous reactions: | Hazardous polymerization does not occur. |
| Conditions to avoid: | Heat, sparks, flames. Contact with incompatible materials. |
| Incompatible Materials: | Strong oxidizing agents. Aluminum. Copper. |
| Hazardous Decomposition Products: | Nitrogen oxides. Thermal decomposition may produce oxides of carbon and nitrogen. |

11. Toxicological information

Information on likely routes of exposure

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| Inhalation: | Dust may irritate respiratory system. |
| Skin Contact: | Prolonged skin contact may cause temporary irritation. |
| Eye contact: | May cause temporary eye irritation. |
| Ingestion: | Irritating. May cause nausea, stomach pain and vomiting. |

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

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| Oral Product: | LD 50 (Rat): 5,900 - 6,000 mg/kg |
| Dermal Product: | LD 50 (Rat) > 5,000 mg/kg |
| Inhalation Product: | No data available. |

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| Repeated dose toxicity Product: | No data available. |
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| Skin Corrosion/Irritation Product: | Prolonged skin contact may cause temporary irritation. |
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| Serious Eye Damage/Eye Irritation Product: | May cause temporary eye irritation. |
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| Respiratory or Skin Sensitization Product: | Not a skin nor a respiratory sensitizer. |
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| Carcinogenicity Product: | This substance has no evidence of carcinogenic properties. |
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IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: Respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: The product is readily biodegradable.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: -1.56

Mobility in soil:

The product is water soluble and may spread in water systems.

Other adverse effects:

The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions:

Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Not classified

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

None present or none present in regulated quantities.

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

US. New Jersey Worker and Community Right-to-Know Act

No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

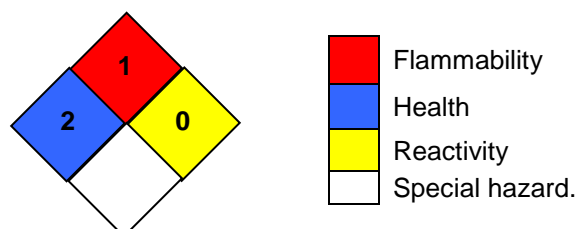
Not applicable

Inventory Status:

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| Australia AICS: | On or in compliance with the inventory |
| Canada DSL Inventory List: | On or in compliance with the inventory |
| China Inv. Existing Chemical Substances: | On or in compliance with the inventory |
| Japan (ENCS) List: | On or in compliance with the inventory |
| Japan ISHL Listing: | On or in compliance with the inventory |
| Korea Existing Chemicals Inv. (KECI): | On or in compliance with the inventory |
| Mexico INSQ: | On or in compliance with the inventory |
| New Zealand Inventory of Chemicals: | On or in compliance with the inventory |
| Philippines PICCS: | On or in compliance with the inventory |
| Taiwan Chemical Substance Inventory: | On or in compliance with the inventory |
| US TSCA Inventory: | On or in compliance with the inventory |
| EINECS, ELINCS or NLP: | On or in compliance with the inventory |

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 11-02-2020

Revision Information: Not relevant.

Version #: 2.0

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

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