Section 1. Product and Company Identification

Product Name Triethanolamine 99%
CAS Number 102-71-6

Parchem - fine & specialty chemicals
415 Huguenot Street
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EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture
No need for classification according to GHS criteria for this product.

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200
This product does not contain any components classified as hazardous under the referenced regulation.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200
This product is not regarded as hazardous under current OSHA Hazard Communication standard; CFR 29 Part 1910.1200.

GHS Label Elements
Pictograms: N/A
Signal word: N/A

Hazard and precautionary statements
None

Hazards not otherwise classified
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200
Emergency Overview
NO PARTICULAR HAZARDS KNOWN.
Use with local exhaust ventilation.
Eye wash fountains and safety showers must be easily accessible.
Wear suitable protective clothing, gloves and eye/face protection.

Section 3. Composition / Information on Ingredients

Common Name	Triethanolamine 99%
Synonym(s)	Tris(2-hydroxyethyl)amine; TEA
Formula	$C_6H_{15}NO_3$
CAS Number	102-71-6

Section 4. First Aid Measures

Description of first-aid measures
General Advice: Remove contaminated clothing.
Inhalation: Keep patient calm, remove to fresh air. Seek medical attention if necessary.
Skin Contact: Wash off thoroughly with ample water. If irritation develops, seek medical attention.
Eye Contact: Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek immediate medical attention.
Ingestion: Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed
Symptoms: No significant symptoms are expected due to the non-classification of the product.

Indication of any immediate medical attention and special treatment needed
Note to physician
Treatment: Symptomatic treatment (decontamination, vital functions).

Section 5. Firefighting Measures

Extinguishing media
Suitable extinguishing media: Water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture
Hazards during fire-fighting: Nitrogen oxides, carbon oxides
The substances/groups of substances mentioned can be released in case of fire. Under certain conditions in case of fire other hazardous combustion products may be generated.

Advice for firefighters
Protective equipment for firefighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information: Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Impact Sensitivity
Remarks: Based on the chemical structure there is no shock-sensitivity

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Handle in accordance with good industrial hygiene and safety practice.

Environmental precautions: Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
For large amounts: Pump off product.
For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.

Spills should be contained, solidified, and placed in suitable containers for disposal.

Section 7. Handling and Storage

Precautions for safe handling
Ensure thorough ventilation of stores and work areas. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink, or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion: Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities
Segregate from acids and acid forming substances.
Suitable materials for containers: Carbon steel (Iron), Stainless steel 1.4401, Stainless steel 1.4301 (V2), High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Further information on storage conditions: Containers should be stored tightly sealed in a dry place.

Storage stability:
Storage temperature: 20 - 40°C
Storage duration: 12 Months
May discolor after lengthy storage.
From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

Section 8. Exposure Controls / Personal Protection

No occupational exposure limits known.

Advice on system design: Provide adequate exhaust ventilation to control work place concentrations.

Personal protective equipment
Respiratory protection: Breathing protection if gases/vapors are formed. Observe OSHA regulations for respirator use (29 CFR 1910.134). Respiratory protection in case of vapor/aerosol release.
Hand protection: Wear chemical resistant protective gloves. Consult with glove manufacturer for testing data.
Chemical resistant protective gloves (EN 374), Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):, e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other, Manufacturer's directions for use should be observed because of great diversity of types., Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.
Eye protection: Tightly fitting safety goggles (chemical goggles).
Body protection: Body protection must be chosen based on level of activity and exposure

No body protection required if used for intended purpose and satisfying generally accepted industrial hygiene rules.

General safety and hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

Section 9. Physical and Chemical Properties

Form: 100 % (m): Viscous
Odor: Amine-like
Odor Threshold: Not determined
Color: Colorless to pale yellow
pH Value: 10.3 (10 g/l, 20°C)
Melting Range: 18 - 23°C
Boiling point: 336.1°C (1,013 hPa) The substance/product decomposes.
Flash point: 179°C Literature data. (Unspecified, closed cup)
Flammability: Not flammable
Lower explosion limit: For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15°C below the flash point.
Upper explosion limit: For liquids not relevant for classification and labelling.
Auto-ignition Temperature: 324°C Literature data.
Vapor pressure: 0.00029 hPa (20°C) Literature data.
Density: 1.125 g/cm^3 (20°C)

Relative density: No applicable information available.
Vapor density: No applicable information available.
Partitioning coefficient (n-octanol/water): log Pow: -2.3 (25°C) (OECD Guideline 107)
Self-ignition temperature: not self-igniting
Thermal decomposition: 305°C, 580 kJ/kg Thermal decomposition above the indicated temperature is possible.
Viscosity, dynamic: 934 mPa*s (20°C) (calculated (from kinemetic viscosity))
Viscosity, kinematic: 830.2 mm^2/s (20.5°C) (OECD 114)
Solubility in water: > 1,000 g/l (20°C) miscible
Miscibility with water (20°C): miscible in all proportions
Solubility (quantitative): No applicable information available.
Solubility (qualitative): No applicable information available.
Molar mass: 149.19 g/mol
Evaporation rate: Value can be approximated from Henry's Law Constant or vapor pressure.

Section 10. Stability and Reactivity

Reactivity: No hazardous reactions if stored and handled as prescribed/indicated.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing. (other)
Formation of flammable gases: Forms no flammable gases in the presence of water.

Chemical stability: The product is stable if stored and handled as prescribed/indicated.
Possibility of hazardous reactions: Reacts with acids. Reacts with oxidizing agents. Reacts with acid chlorides. Reacts with halogenated compounds. The progress of reaction is exothermic. Incompatible with acid chlorides and acid anhydrides.
Conditions to avoid: Avoid extreme temperatures. See MSDS section 7 - Handling and storage.
Incompatible materials: oxidizing agents, nitrosating agents, acids, acid forming substances

Hazardous decomposition products
Decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.
Hazardous decomposition products: Carbon oxides, nitrogen oxides, nitrous gases

Thermal decomposition: 305°C, 2.5 K/min
Thermal decomposition above the indicated temperature is possible.

Section 11. Toxicological Information

Primary routes of exposure
Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects
Acute Toxicity
Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Inhalation-risk test (IRT): No mortality within 8 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard.

Oral
Type of value: LD50
Species: Rat (male/female)
Value: approx. 7,200 mg/kg

Inhalation: Study does not need to be conducted.

Dermal
Type of value: LD50
Species: rabbit
Value: > 2,000 mg/kg (OECD Guideline 402)

Assessment other acute effects
Assessment of STOT single: The available information is not sufficient for evaluation.

Irritation/Corrosion
Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

Skin
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye
Species: rabbit
Result: non-irritant

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test
Species: guinea pig
Result: Non-sensitizing.
Method: OECD Guideline 406

Aspiration Hazard: No aspiration hazard expected.

Chronic Toxicity/Effects
Repeated dose toxicity
Assessment of repeated dose toxicity: No adverse effects were observed after repeated exposure in animal studies.

Genetic toxicity
Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria and mammalian cell culture.
The substance was not genotoxic in mammalian cell culture.

Carcinogenicity
Assessment of carcinogenicity: Indication of possible carcinogenic effect in animal tests. The substance showed carcinogenic activity in animals after chronic administration to the skin. IARC Group 3 (not classifiable as to human carcinogenicity).

Reproductive toxicity
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: Causes developmental effects in animals at high, maternally toxic doses.

Symptoms of Exposure: No significant symptoms are expected due to the non-classification of the product.

Section 12. Ecological Information

Toxicity
Aquatic toxicity
Assessment of aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish
LC50 (96 h) 11,800 mg/l, Pimephales promelas (Fish test acute, Flow through.)
The product will cause changes in the pH value of the test system. The result refers to an neutralized sample. The statement of the toxic effect relates to the analytically determined concentration.
Literature data.

Aquatic invertebrates
EC50 (24 h) 2,038 mg/l, Daphnia magna (Daphnia test acute)
The details of the toxic effect relate to the nominal concentration. Literature data.

Aquatic plants
EC50 (72 h) 512 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)
The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an neutralized sample. Literature data.

EC10 (72 h) 26 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)
The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an neutralized sample. Literature data.

Chronic toxicity to fish: Study scientifically not justified.
Chronic toxicity to aquatic invertebrates: No observed effect concentration (21 d) 16 mg/l, Daphnia magna (other, semistatic). Literature data.
Assessment of terrestrial toxicity: With high probability not acutely harmful to terrestrial organisms.

Soil living organisms
Toxicity to soil dwelling organisms: Study scientifically not justified.

Toxicity to terrestrial plants: Study scientifically not justified.
Other terrestrial non-mammals: LC50 (3 d) 49,950 mg/kg, Drosophila melanogaster

Microorganisms/Effect on activated sludge
Toxicity to microorganisms
OECD Guideline 209 activated sludge, domestic/EC50 (180 min): > 1,000 mg/l
The details of the toxic effect relate to the nominal concentration. Literature data.

DIN 38412 Part 8 aquatic
bacterium/Toxic limit concentration (16 h): > 10,000 mg/l
The details of the toxic effect relate to the nominal concentration. Literature data.

Persistence and Degradability
Assessment biodegradation and elimination (H2O): Readily biodegradable (according to OECD criteria). Literature data.

Elimination information
100 % CO2 formation relative to the theoretical value (5 d) (aerobic, activated sludge, domestic)
90 - 100 % DOC reduction (19 d) (OECD 301E/92/69/EEC, C.4-B) (aerobic, municipal sewage treatment plant effluent)

Assessment of stability in water: According to structural properties, hydrolysis is not expected/probable.

Bioaccumulative potential
Assessment bioaccumulation potential: Does not accumulate in organisms.

Bioaccumulation potential
Bioconcentration factor: < 0.4 (42 d), Cyprinus carpio (OECD Guideline 305 C)
Literature data.

Mobility in soil
Assessment transport between environmental compartments: The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Land Transport
US DOT: Not classified as a dangerous good under transport regulations

Sea Transport
IMDG: Not classified as a dangerous good under transport regulations

Air Transport
IATA/ICAO: Not classified as a dangerous good under transport regulations

Section 15. Regulatory Information

Federal Regulations
Registration status:
Chemical TSCA, US released/listed
Cosmetic TSCA, US released/exempt

EPCRA 311/312 (Hazard categories): Not hazardous

EPCRA 313:

CAS Number	Chemical name
111-42-2	2,2'-Iminodiethanol

CERCLA RQ	CAS Number	Chemical name
100 LBS	111-42-2	2,2'-Iminodiethanol
1 LBS	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-

State Regulations

State RTK	CAS Number	Chemical name
MA	102-71-6	2,2',2"-Nitrilotriethanol
	111-42-2	2,2'-Iminodiethanol
	141-43-5	2-Aminoethanol
	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
NJ	102-71-6	2,2',2"-nitrilotriethanol
	111-42-2	2,2'-iminodiethanol
	141-43-5	2-aminoethanol
	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
PA	102-71-6	2,2',2"-nitrilotriethanol
	111-42-2	2,2'-iminodiethanol
	141-43-5	2-aminoethanol
	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-

CA Prop. 65:
WARNING: This product contains a chemical(s) known to the state of California to cause cancer.

NFPA Hazard Codes
Health: 0
Fire: 1
Reactivity: 0
Special:

HMIS III Rating
Health: 0
Flammability: 1
Reactivity: 1

Assessment of the hazard classes according to UN GHS criteria (most recent version): No information available

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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