

MATERIAL SAFETY DATA SHEET
Hazardous according to criteria of Worksafe Australia

Date of Issue : Feb 2001

1. IDENTIFICATION

General

Product Name : TRIETHANOLAMINE

Other Names : TEA ; TRI(2-HYDROXYETHYL)AMINE TROLAMINE, TEA

UN No. : N/A

Dangerous Goods Class : C.2

Subsidiary Risk : None Allocated

Hazchem Code : N/A

Pack Group : 0

EPG : N/A

Poisons Schedule : N/A

Uses :

Fatty acid soaps used in drycleaning, cosmetics, household detergents and emulsions. Wool scouring, textile antifume agent and water-repellent, dispersion agent, corrosion inhibitor, softening agent, emulsifier, humectant and plasticiser, chelating agent, rubber accelerator, pharmaceutical alkalisng agent.

1.1 Physical Description / Properties

Appearance : Transparent colourless to pale amber liquid with mild ammoniacal odour.

Formula : $N(CH_2CH_2OH)_3$

Boiling Point : 310 deg C

Melting Point : 15.8 deg C

Vapour Pressure : < 0.01 mm Hg (1 atmosphere)

Specific Gravity : 1.126 (water = 1)

Flash Point : Closed Cup 194

pH : N/A ()

Solubility in water : 100 g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

1.2 Other Properties

Percent volatiles = 0.25% Vapour density (air = 1) = 4.9 Evaporation rate (Butyl Acetate = 1) : < 0.01

1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
TRIETHANOLAMINE	[102-71-6]	> 83

DIETHANOLAMINE	[111-42-2]	< 15
MONOETHANOLAMINE	[141-43-5]	< 1

2. HEALTH HAZARD INFORMATION

2.1 Health Effects - Acute

Swallowed

May cause burning or painful sensations in the mouth, throat, chest and abdomen, nausea, vomiting and diarrhea. May cause dizziness, drowsiness, faintness, weakness, collapse and coma.

Eye

May cause irritation, experienced as stinging with excess blinking and tear production. Excess redness and swelling of the conjunctiva may occur.

Skin

Brief contact may cause slight irritation with itching and local redness. Prolonged contact may cause severe irritation, with local discomfort or pain, and local redness and swelling. Skin absorption is not expected.

Inhaled

Vapour or mist from heated material may cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing.

2.2 Health Effects - Chronic

Repeated overexposure may cause damage to kidneys and liver. Skin contact may aggravate existing dermatitis. Skin contact may cause sensitisation and an allergic skin reaction in a small proportion of individuals. Recent analyses of diethanolamine and triethanolamine for N-nitrosodiethanolamine have not revealed its presence at the detection limit (20ppb). However,

amines may react with nitrites or other nitrosating agents to form nitrosamines. Some nitrosamines have been shown to be carcinogenic in laboratory animals.

2.3 First Aid

Swallowed

If patient is fully conscious, give 2 glasses of water. Induce vomiting. Obtain medical attention.

Eye

Immediately flush eyes with water and continue washing for 15 minutes. Obtain medical attention.

Skin

Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if irritation persists. Wash clothing before reuse.

Inhaled

Remove to fresh air. Obtain medical attention if effects persist.

First Aid Facilities

Ensure an eye bath and safety shower are available and ready for use.

2.5 Advice to Doctor

There is no specific antidote. Treat symptomatically. The hazards of this material are due mainly to its severely irritant properties on the skin and mucosal surfaces.

2.6 Toxicity Data

Oral LD50 = 8000 mg/kg (Rat) Dermal LD50 = no irritation (rabbit 4 hr occluded) Eye = 0.1 ml (rabbit), minor iritis, minor conjunctival irritation with significant discharge, no corneal injury.

3. PRECAUTIONS FOR USE

3.1 Exposure Standards

5 mg/m³ (TWA8 ACGIH)

3.2 Engineering Controls

Ensure adequate ventilation to maintain exposure levels to a minimum including the use of general (mechanical) room ventilation. Special, local ventilation is needed at points where vapours can be expected to escape to the workplace air.

3.3 Personal Protection

Respiratory : use self-contained breathing apparatus in high vapour concentrations. Hands/skin : wear butyl rubber or PVC-coated gloves. Eyes : tight-fitting monogoggles. Other : wear a chemical apron and other suitable clothing to minimise exposure. Wash thoroughly after handling and before eating, drinking, smoking or using the toilet.

3.4 Flammability

Material is combustible. Avoid temperatures above 250 deg C, may undergo self-sustaining thermal decomposition. Do not mix this product with nitrites or other nitrosating agents because a nitrosamine may be formed. Nitrosamines may cause cancer. Avoid incompatible materials such as strong oxidising agents, strong bases, strong acids, aldehydes, acrylates, organic anhydrides and organic halides. Burning of this product can produce the following combustion products: oxides of carbon and nitrogen. carbon monoxide is highly toxic if inhaled, carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

SAFE HANDLING INFORMATION

4.1 Storage / Transport

Store in a cool, dry area away from direct heat and sunlight. Protect against physical damage. Isolate from any heat source or ignition. Avoid contact with copper alloys and copper. Material is suitably handled in stainless steel equipment. Do not use aluminium for storage of aqueous solution. Sudden release of hot organic chemical vapours or mist from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment

under vacuum, may result in ignitions without presence of obvious ignition sources. Product can be segregated or freezeed below 16 deg C. Thaw and mix before sampling or using.

4.2 Packaging / Labelling

UN No. N/A

Class C.2

Sub Risk None Allocated

Hazchem Code N/A

Pack Group 0

EPG No. N/A

Shipping Name TRIETHANOLAMINE

Hazard IRRITANT

Risk Phrases

R36/38 Irritating to eyes and skin.

Safety Phrases

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

4.3 Spills and Disposal

Spills

Wear suitable protective equipment. Avoid contact with eyes and skin.

Collect in drums and hold for waste disposal. Wash spill area with copious quantities of water. Ventilate area after material pickup is complete. If spilled material cannot be collected, it may be possible to neutralise with dilute hydrochloric acid and then, dispose of the resulting salt in accordance with national and local regulations.

Disposal

Dispose of in accordance with all Local, State and Federal regulations at an approved waste disposal facility.

4.4 FIRE AND EXPLOSION HAZARD

Fire / Explosion

During a fire oxides of nitrogen may be evolved. DO NOT add nitrite or other nitrosating agents, a nitrosamine which may cause cancer may be formed. Avoid temperature above 250 deg C, this may cause self-sustaining thermal decomposition. Incompatible with strong oxidising agents, strong bases, strong acids, aldehydes, ketones, acrylates, organic anhydrides and organic halides. Burning can produce hazardous oxides of carbon and nitrogen. Hazardous polymerisation will not occur.

Extinguishing Media

Use alcohol-type or all-purpose type foams for large fires. Use carbon dioxide or dry chemical media for small fires. Use media/equipment appropriate to surrounding fire conditions. NEVER direct a solid stream of water or foam into burning molten material, this may cause splattering and spread the fire. Fire-fighters should wear full protective clothing including self-contained breathing apparatus.

5 OTHER INFORMATION

Other Information

Laboratory tests show that, at low concentrations (about 10ppm), these ethanolamines can be degraded in a biological wastewater treatment system. However, large quantities might be detrimental to aquatic life.

5.1 Contact Points

Organisation	Location	Telephone	Ask For
Redox Chemicals Pty Ltd	Wetherill Park NSW	02-97255155	Technical Officer
Poisons Information Centre	Westmead		