SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number:	102-71-6		
Product Name:	Triethanolamine 99 %		
Revision Date:	Apr 17, 2018	**Date Printed:**	Apr 17, 2018
Version:	1.2	**Supersedes Date:**	Dec 15, 2017
Manufacturer's Name:	Thames River Chemical Corp.		
Address:	5230 Harvester Road Burlington, ON, CA, L7L 4X4		
Emergency Phone:	CHEMTREC (800) 424-9300		
Information Phone Number:	905-681-5353		
Fax:	905-681-5377		

Product/Recommended Uses: For laboratory or industrial use only.

SECTION 2) HAZARDS IDENTIFICATION

Classification

Eye Irritation - Category 2A

Pictograms

Signal Word

Warning

Hazard Statements - Health

Causes serious eye irritation

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Wash thoroughly/Wash hands thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Precautionary Statements - Storage

No precautionary statement available.

Precautionary Statements - Disposal

No precautionary statement available.

Physical Hazards Not Otherwise Classified

No Data Available

Health Hazards Not Otherwise Classified

No Data Available

SECTION 3) COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
0000102-71-6	TRIETHANOLAMINE	99.0% - 100.0%
0000111-42-2	DIETHANOLAMINE	0.1% - 0.4%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Eye Contact

Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 15-20 minutes or until medical aid is available. If irritation occurs, cautiously rinse eyes with lukewarm, gently flowing water for 5 minutes, while holding the eyelids open.

Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse/wash with lukewarm, gently flowing water and mild soap for 5 minutes or until product is removed. If skin irritation occurs or you feel unwell: Get medical advice/attention.
Wash contaminated clothing before re-use or discard.

Ingestion

Rinse mouth. Do NOT induce vomiting. If vomiting occurs naturally, lie on your side, in the recovery position. Get medical advice/attention.

Most Important Symptoms and Effects, Both Acute and Delayed

No Data Available

Indication of Any Immediate Medical Attention and Special Treatment Needed

No Data Available

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water fog or fine spray, alcohol-resistant foam or dry chemical. Use water spray to cool fire-exposed containers. Violent steam generation or eruption may occur upon application of direct water stream to hot product. High pressure water streams may scatter hot liquid.

Unsuitable Extinguishing Media

Do not use straight stream of water.

Specific Hazards in Case of Fire

Product can burn if heated (Flash point = 179°C).
Auto-ignition temperature of TEA=350°C
Product will burn if involved in a fire.
Hazardous decomposition may occur above 200°C. During a fire, smoke may contain vaporized TEA in addition to unidentified toxic and/or irritating compounds. Combustion products may include toxic nitrogen oxide, hydrogen cyanide, formaldehyde carbon monoxide, carbon dioxide and ammonia gases. Heat from a fire can cause a rapid build-up of pressure inside containers, which may cause explosive rupture.

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Move undamaged containers from immediate hazard area if it can be done safelv.

be done safely.

Special Protective Actions

Wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unauthorized personnel away. Stay uphill and/or upstream. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Ventilate closed spaces before entering.

Recommended Equipment

Wear chemical protective clothing.

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers. Dike far ahead of liquid spill for later disposal.

Methods and Materials for Containment and Cleaning up

Absorb Liquids in vermiculite, dry sand, earth, or similar inert material and deposit in sealed containers for disposal.

SECTION 7) HANDLING AND STORAGE

General

Wear personal protective gloves, clothing and other equipment required for the workplace. Wash hands after use. Do not get in eyes, on skin or on clothing. Do not breathe vapors or mists. Use good personal hygiene practices. Eating, drinking and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. Eyewash stations and showers should be available in areas where this material is used and stored All containers must be properly labelled.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits.

Storage Room Requirements

Keep containers tightly closed when not in use. Store in dry, cool areas, out of direct sunlight and away from other sources of heat. Empty container retain residue and may be dangerous.

SECTION 8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection

Wear indirect-vent, impact and splash resistant goggles when working with liquids

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold

limit value.

Chemical Name	CANsmg	CANsppm	CANtmg	CANtppm	OSHA STEL (mg/m3)	OSHA STEL (ppm)	OSHA TWA (mg/m3)	OSHA TWA (ppm)	OSHA Carcinogen	OSHA Tables (Z1, Z2, Z3)	OSHA Skin designation	ACGIH STEL (mg/m3)
DIETHANOLAMINE	26	6	13	3								
TRIETHANOLAMINE												

Chemical Name	ACGIH STEL (ppm)	ACGIH TWA (mg/m3)	ACGIH TWA (ppm)	ACGIH TLV Basis	ACGIH Carcinogen	ACGIH Notations
DIETHANOLAMINE		1 (IFV)		Liver & kidney dam	A3	Skin; A3
TRIETHANOLAMINE		5		Eye & skin irr		

irr - Irritation

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	9.38 lb/gal
Specific Gravity	1.12

Appearance	clear, colourless liquid
Odor Description	mild ammonia (fishy) odour
Odor Threshold	N/A
pH	10.5 (10% aqueous solution)
Melting/Freezing Point	21 °C
Low Boiling Point	340
High Boiling Point	N/A
Flash Point	179 °C
Vapor Pressure	<0.01 mmHg @ 20 °C
Vapor Density	5.14 (air=1)
Evaporation Rate	< 0.01 (n-Butyl Acetate = 1) (for TEA)
Upper Explosion Level	N/A
Lower Explosion Level	N/A
Water Solubility	Complete
Coefficient Water/Oil	-2.53 Kow (n-octanol/water)
Viscosity	601 mPas @ 25°C (approximate)

SECTION 10) STABILITY AND REACTIVITY

Reactivity

No Data Available

Stability

Stable under normal storage and handling conditions.

Conditions to Avoid

Avoid high temperatures and contact with sources of ignition. Avoid exposing product to air, light and moisture. Avoid direct sunlight.

Hazardous Reactions/Polymerization

Heating above 60°C in aluminum can result in corrosion and generation of flammable hydrogen gas.
Reacts with cellulose nitrate causing fire and explosion hazard.
Reacts violently with strong acids and strong oxidants (e.g. nitric acid, hydrogen peroxide).
Contact with nitrosating agents, under acidic conditions such as nitrous acid, nitrite or nitrogen oxides, can form nitrosamines some of which are potent carcinogens.
Alkanolamine substances are decomposed by light and slowly oxidized by air, turning yellow and then brown. This reaction is accelerated by heat and the presence of metals.
Alkanolamine substances are oxidized by air slowly with evolution of heat. This reaction may lead to spontaneous combustion if the substance is on an adsorbent or on a high surface area material (e.g. absorbent material or thermal insulation).

Incompatible Materials

Avoid contact with strong acids, strong oxidizing agents, halogenated hydrocarbons, nitrating agents, alkali metals, metal hydrides and aluminum.
Product may be corrosive to aluminum alloys at elevated temperatures, many 400 series stainless steel alloys, copper, zinc, and aluminum bronze.
In combination with water, the product may be corrosive to copper and copper alloys (e.g. brass), some aluminum alloys, zinc, zinc alloys, and galvanized surfaces.
Triethanolamine attacks some polymers including polyvinylchloride, polyurethane, polyamide imide, high-density polyethylene and polyacetal at elevated temperatures.

Hazardous Decomposition Products

Decomposition products may include nitrogen oxides, ammonia, irritating aldehydes and ketones. Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.
Oxidation in air may form transient, organic peroxides or thermally unstable N-oxides such as hydroxylamines and carbamates form as well as nitrosamines, which are suspected cancer causing chemicals. Oxidation of triethanolamine and decomposition of products is accelerated by light, heat, and/or presence of metals or metal oxides.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Route of Exposure

Inhalation, ingestion, skin absorption

Acute Toxicity

No Data Available

Aspiration Hazard

No Data Available

Carcinogenicity

No Data Available

Germ Cell Mutagenicity

No Data Available

Reproductive Toxicity

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

No Data Available

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

0000102-71-6 TRIETHANOLAMINE

LD50 (oral, rat): 5000-9110 mg/kg (2,8,17,18)
LD50 (oral, mouse): 7400 mg/kg (18)
LD50 (oral, rabbit): 2200 mg/kg (18) (reported but cannot be confirmed)
LD50 (oral, guinea pig): 8000 mg/kg (8,17); 2200 mg/kg (18) (reported, but cannot be confirmed)

0000111-42-2 DIETHANOLAMINE

LD50 (oral, rat): Values have been reported ranging from 710-3540 mg/kg(1,2,3,4,5)
LD50 (oral, mouse): 3300 mg/kg (1)
LD50 (oral, guinea pig): 2000 mg/kg (1)
LD50 (dermal, rabbit): 12200 mg/kg (unverifiable; this value seems inappropriately high; see

SECTION 12) ECOLOGICAL INFORMATION

Toxicity

No Data Available

Mobility in Soil

No Data Available

Bio-accumulative Potential

No Data Available

Persistence and Degradability

No Data Available

Other Adverse Effects

No Data Available

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. It is the responsibility of the user of the product to determine at the time of disposal whether the product meets local criteria for hazardous waste. Waste management should be in full compliance with national, provincial and local laws.

SECTION 14) TRANSPORT INFORMATION

Transport Canada Information

UN number: Not Regulated

Proper shipping name: N/A

Hazard class: N/A

Packaging group: N/A

U.S. DOT Information

UN number: Not Regulated

Proper shipping name: N/A

Hazard class: N/A

Packaging group: N/A

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000102-71-6	TRIETHANOLAMINE	99.0% - 100.0%	DSL,TSCA,EU_EC_Inventory - EC Inventory
0000111-42-2	DIETHANOLAMINE	0.1% - 0.4%	DSL,TSCA,CA_Prop65 - California Proposition 65,EU_EC_Inventory - EC Inventory

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG- Canadian Transportation of Dangerous Goods; CANsmg or CANsppm - Canadian Short Term Exposure Level in mg/L or in ppm; CANtmg or CANtppm - Canadian Time Weighted Average in mg/L or in ppm; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Version 1.2:

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