SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number:	102-71-6		
Product Name:	Alkanolamine 5503		
Revision Date:	May 07, 2018	**Date Printed:**	May 07, 2018
Version:	1.0	**Supersedes Date:**	N.A.
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

Not classified

Pictograms

None

Signal Word

No signal word available.

Precautionary Statements - General

No precautionary statement available.

Precautionary Statements - Prevention

No precautionary statement available.

Precautionary Statements - Response

No precautionary statement available.

Precautionary Statements - Storage

No precautionary statement available.

Precautionary Statements - Disposal

No precautionary statement available.

SECTION 3) COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
0000102-71-6	TRIETHANOLAMINE	60.0% - 90.0%
0000111-42-2	DIETHANOLAMINE	0.1% - 1.0%

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.

If eye irritation persists, get medical advice/attention.

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. Call a Poison Centre or doctor if you feel unwell or are concerned.

Most Important Symptoms and Effects, Both Acute and Delayed

Inhalation: Symptoms of exposure may include coughing, wheezing, sore throat, difficult breathing.
Skin Contact: Symptoms of irritation include local redness, dryness and discomfort.
Eye Contact: Liquid, mists and/or vapor may cause eye irritation. Symptoms of irritation include redness, tears.
Ingestion: Swallowing can cause irritation of the digestive tract, abdominal and chest pain, nausea, vomiting and diarrhea.

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.

Unsuitable Extinguishing Media

Do not use straight stream of water.

Specific Hazards in Case of Fire

Product can burn if heated Flash point = 193°C (379°F)
Auto-ignition temperature =332°C (629°F) @ 1013 hPa
Combustible if involved in a fire.
Hazardous decomposition may occur above 200°C. During a fire, smoke may contain vaporized TEA and other 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

Evacuate the area and fight fire from a safe distance or a protected location. Thermal decomposition products such as nitrogen oxides and hydrogen cyanide are hazardous to health. Do not enter without specialized protective equipment suitable for the situation. Approach the fire from upwind to avoid hazardous vapors. Burning liquids may be extinguished by dilution with water. Water spray may be used to flush spills away from ignition sources.
Avoid all contact with this material during fire-fighting operations. Wear chemical resistant clothing (chemical splash suit) and positive-pressure self-contained breathing apparatus.
Contain water run-off if possible.

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

Stop the spill if it is safe to do so. Contain the spill with earth, sand or other suitable non-combustible absorbent. Keep materials which can burn away from spilled product. Do not absorb with sawdust, woodchips or other cellulose materials.
Clean up spills immediately.
Large spills: Pump spilled liquid into suitable containers.
Small spills: Scoop up spilled product and any contaminated absorbents into appropriate, labeled containers. Contaminated absorbent may pose the same hazards as the spilled product.
Flush the area with water and collect wash-water for proper disposal.

SECTION 7) HANDLING AND STORAGE

General

Keep away from flames and hot surfaces. – No smoking. Prevent handling with incompatible materials such as strong acids and oxidizing agents. Never perform any welding, cutting, soldering, drilling or other hot work on an empty vessel, container or piping until all liquid and vapors have been cleared. Inspect containers for leaks before handling. Prevent damage to containers. Keep containers closed when not in use.

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 away from strong oxidants, strong acids and other incompatible materials (see Section 10). Do not store in containers made of aluminum, copper, brass or other copper alloys. Store separated from food and feedstuffs. 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	9.35 lb/gal
Specific Gravity	1.12

Appearance	colourless, viscous liquid
Odor Description	slight ammonia-like odor
Odor Threshold	N/A
pH	No Data Available
Melting/Freezing Point	17 °C
Low Boiling Point	320 °C
High Boiling Point	N/A
Flash Point	193 °C
Vapor Pressure	0.005 hPa (20°C)
Vapor Density	No Data Available
Evaporation Rate	<0.01 (n-Butyl Acetate = 1)
Upper Explosion Level	N/A
Lower Explosion Level	N/A
Water Solubility	Completely soluble
Coefficient Water/Oil (n-octanol/water)	-1.75 Kow
Viscosity	0.920 Pa.s (20°C) (dynamic)

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), increasing risk of fire or explosion.
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 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

No Data Available

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

Not harmful to fish, invertebrates or algae.
Algae:
72 Hr EC50 Desmodesmus subspicatus: 216 mg/L
96 Hr EC50 Desmodesmus subspicatus: 169 mg/L
Freshwater fish:
96 Hr LC50 Pimephales promelas: 10600-13000 mg/L
96 Hr LC50 Pimephales promelas: >1000 mg/L
96 Hr LC50 Lepomis macrochirus: 450-1000 mg/L
24 Hr EC50 Daphnia magna: 1386 mg/L

Mobility in Soil

Soluble in water; low potential for absorption in soil.
Henry's Law Constant (H) is estimated to be 3.38E-19 atm m3/mole at 25°C.
Log soil organic carbon partition coefficient (log Koc) =1.24 calculated.

Bio-accumulative Potential

Low potential for bioaccumulation.
Bioconcentration Factor (BCF) = <3.9 method: OECD 305C
Log Pow = -2.3 (25°C)

Persistence and Degradability

Material is readily biodegradable in water according to OECD Test 301B for ready biodegradability.
Theoretical oxygen demand (ThOD) is calculated to be 2.04 p/p.
Inhibitory concentration (IC50) in OECD "Activated Sludge, Respiratory Inhibition Test" (Guideline #209) is > 1000 mg/L.

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

Hazard class: N/A

Proper shipping name: N/A

Packaging group: N/A

U.S. DOT Information

UN number: Not Regulated

Hazard class: N/A

Proper shipping name: N/A

Packaging group: N/A

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000102-71-6	TRIETHANOLAMINE	60.0% - 90.0%	DSL,TSCA,EU_EC_Inventory - EC Inventory
0000111-42-2	DIETHANOLAMINE	0.1% - 1.0%	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.

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