

SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number: 141-43-5
Product Name: Monoethanolamine 99%
Revision Date: Apr 17, 2018 **Date Printed:** Apr 17, 2018
Version: 3.0 **Supersedes Date:** Dec 14, 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

Acute toxicity Dermal - Category 4
Acute toxicity Inhalation - Category 4
Acute toxicity Oral - Category 4
Serious Eye Damage - Category 1
Skin Corrosion - Category 1B
Specific Target Organ Toxicity -Single Exposure (Respiratory Tract Irritation) - Category 3

Pictograms



Signal Word

Danger

Hazard Statements - Health

Harmful in contact with skin
Harmful if inhaled
Harmful if swallowed
Causes serious eye damage
Causes severe skin burns and eye damage
May cause respiratory 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

- Wear protective gloves/protective clothing/eye protection/face protection.
- Avoid breathing dust/fume/gas/mist/vapors/spray.
- Use only outdoors or in a well-ventilated area.
- Wash thoroughly/Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Keep container tightly closed.

Precautionary Statements - Response

- IF ON SKIN: Wash with plenty of water and soap.
- Call a POISON CENTER or doctor, if you feel unwell.
- Specific treatment (see first-aid on the SDS).
- Take off contaminated clothing. And wash it before reuse.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF SWALLOWED: Call a POISON CENTER or doctor, if you feel unwell.
- Rinse mouth.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor.
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- Wash contaminated clothing before reuse.

Precautionary Statements - Storage

- Store locked up.
- Store in a well-ventilated place. Store locked up.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local/national/international regulation. Waste management should be in full compliance with national, regional and local laws.

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
0000141-43-5	ETHANOLAMINE	99.6% - 99.9%
0000111-42-2	DIETHANOLAMINE	0.0% - 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

Get medical advice/attention if you feel unwell or are concerned. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. Remove source of exposure or move person to fresh air and keep comfortable for breathing. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

Eye Contact

Immediately call a POISON CENTER/doctor. 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 30 minutes or until medical aid is available. Take care not to rinse contaminated water into the unaffected eye or onto the face.

Skin Contact

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash contaminated clothing before re-use. Immediately call a POISON CENTER/doctor. Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available.

Ingestion

Never give anything by mouth if victim is rapidly losing consciousness. Have victim rinse mouth with water. Quickly transport victim to an emergency care facility

If vomiting occurs naturally, lie on your side, in the recovery position. Immediately call a POISON CENTER/doctor.

Most Important Symptoms and Effects, Both Acute and Delayed

Inhalation: Symptoms of exposure may include coughing, wheezing, shortness of breath, difficult breathing, headache, nausea, vomiting and chest pain. Prolonged or severe exposure may lead to pulmonary edema; symptoms of pulmonary edema include chest pain and shortness of breath and can be delayed up to 24 or 48 hours after exposure.

Skin Contact: Direct contact with the liquid causes severe irritation or chemical burns. Symptoms include local discomfort or pain, redness and swelling, chemical burns, blister formation and possible tissue destruction.

Eye Contact: Direct contact with liquid or vapor can cause a burning sensation in the eyes, severe eye irritation or chemical burns. Serious damage, even blindness, may result if treatment is delayed.

Ingestion: Swallowing can cause severe irritation and burns to the lips, tongue, throat and digestive tract, abdominal and chest pain, nausea and vomiting. It may cause a shock-like state, fall in blood pressure, slow pulse, convulsions and coma.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Special instructions: Immediately call a POISON CENTER or doctor if swallowed, if inhaled or if in eyes.

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

Corrosive liquid. Product can burn if heated (Flash point >93.0°C (199.4°F)).

Can form explosive mixtures with air at, or above, 86° C. Hazardous decomposition may occur above 200°C. During a fire, smoke may contain vaporized MEA 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. Vapor is heavier than air and can accumulate in confined spaces and low areas. 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. Ethanolamine and its 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. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

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. Evacuate and isolate hazard area and keep unauthorized personnel away.

Recommended Equipment

Wear chemical protective clothing and positive pressure self-contained breathing apparatus (SCBA). Wear liquid tight chemical protective clothing in combination with positive pressure self-contained breathing apparatus (SCBA).

Personal Precautions

DO NOT get on skin, eyes or clothing. Avoid breathing vapor or mist.

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.

Methods and Materials for Containment and Cleaning up

Ventilate area after clean-up is complete. Absorb Liquids in vermiculite, dry sand, earth, or similar inert material and deposit in sealed containers for disposal.

SECTION 7) HANDLING AND STORAGE

General

Keep away from flames and hot surfaces. – No smoking. 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. Assume that empty containers contain residues which are hazardous. 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. This product is not intended for human or animal consumption. All containers must be properly labelled. Eyewash stations and showers should be available in areas where this material is used and stored

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. Report ventilation failures immediately. The use of local ventilation is recommended to control emissions near the source.

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. Keep containers securely sealed when not in use. Protect containers against banging or other physical damage when storing, transferring, or using them. Procedures must be conducted in a fume hood, glove box, or other suitable containment device. Segregate from other hazard classes and store in a cool, dry, well ventilated area, away from sources of ignition and incompatibilities. Provide secondary containment for toxic materials. Store, handle, and use corrosive materials in well-ventilated areas. Do not store on metal shelves. Store containers in plastic tubs or trays as secondary containment. Keep the smallest amount of material in work areas. Avoid rapid temperature changes in liquid storage areas. Store at temperatures above their respective freezing/melting point. Never store corrosives above eye level. Label cabinets with "TOXIC CHEMICALS" or similar warning.

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. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber.

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	CANspm	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								
ETHANOLAMINE	15	6	7.5	3			6	3		1		15

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
ETHANOLAMINE	6	7.5	3	Eye & skin irr		

(IFV) - Inhalable fraction and vapor, A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, dam - Damage, irr - Irritation

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	8.43 lb/gal
Specific Gravity	1.02
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Appearance	Clear, colourless liquid
Odor Description	mild ammonia (fishy) odour
Odor Threshold	N/A
pH	12.1 (25% aqueous solution)
Melting/Freezing Point	10 °C
Low Boiling Point	171 °C
High Boiling Point	N/A
Flash Point	93 °C
Vapor Pressure	53 Pa at 20°C
Vapor Density	2.1
Evaporation Rate	< 1 (n-Butyl Acetate = 1)
Upper Explosion Level	N/A
Lower Explosion Level	N/A
Water Solubility	Complete
Coefficient Water/Oil	-1.31 (n-octanol/water)
Viscosity	18.95 mPas @ 25°C

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. Avoid contact with nitrites, strong acids, chlorides, anhydrides, strong oxidizing agents, strong reducing agents, cellulose nitrate and halogenated hydrocarbons.

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.

Contact with nitrosating agents, under acidic conditions such as nitrous acid, nitrite or nitrogen oxides, can form nitrosamines some of which are potent carcinogens.

Absorbs moisture and can react with carbon dioxide in the air to form salts. It is decomposed by light and slowly oxidized by air, turning yellow and then brown. This reaction is accelerated by heat and the presence of metals.

Corrosive to copper, brass, bronze and other copper alloys, zinc and galvanized iron.

Ethanolamine is 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, acid anhydrides, acyl halides, alkyl halides. Attacks copper, aluminum and their alloys, and rubber.

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.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Route of Exposure

Inhalation, ingestion, skin absorption

Acute Toxicity

Harmful in contact with skin

Harmful if inhaled

Harmful if swallowed

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 damage

Skin Corrosion/Irritation

Causes severe skin burns and eye damage

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

May cause respiratory irritation

0000141-43-5 ETHANOLAMINE

LD50 (oral, rat): 1720 mg/kg (10); 2100 mg/kg (3); 2740 mg/kg (3,8)
LD50 (oral, mouse): 700 mg/kg (10)
LD50 (oral, guinea pig): 620 mg/kg (10)
LD50 (oral, rabbit): 1000 mg/kg (10)
LD50 (dermal, rabbit): 1018 mg/kg (cited as 1 mL/kg) (10)

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

72 Hr EC50 Scenedesmus subspicatus: 15 mg/L
96 Hr LC50 Brachydanio rerio: 3 684 mg/L
96 Hr LC50 Pimephales promelas: 227 mg/L
96 Hr LC50 Oncorhynchus mykiss: 114-196 mg/L
96 Hr LC50 Oncorhynchus mykiss: >200 mg/L
96 Hr LC50 Lepomis macrochirus: 300-1 000 mg/L
48 Hr EC50 Daphnia magna: 65 mg/L

No Data Available

Mobility in Soil

Potential for mobility in soil is very high (Koc between 0 and 50).

Bio-accumulative Potential

Bioconcentration potential is low.

Persistence and Degradability

Material is readily biodegradable.

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

U.S. DOT Information

UN number: UN2491

Proper shipping name: Ethanolamine or Ethanolamine solutions

Hazard class: 8

Packaging group: III

Hazardous substance (RQ): No Data Available

Toxic-Inhalation Hazard: No Data Available

Marine Pollutant: No Data Available

Note / Special Provision: No Data Available

Transport Canada Information

UN number: UN2491

Proper shipping name: Ethanolamine or Ethanolamine solutions

Hazard class: 8

Packaging group: III

Marine Pollutant: No Data Available

Transport in bulk (according to Annex II of MARPOL 73/78): No Data Available

Note / Special Provision: Note / Special Provision

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000141-43-5	ETHANOLAMINE	99.6% - 99.9%	DSL,TSCA,EU_EC_Inventory - EC Inventory
0000111-42-2	DIETHANOLAMINE	0.0% - 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 CANspmm - 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 3.0:

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