

SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number: 111-42-2
Product Name: Diethanolamine 85% Low Freeze Grade
Revision Date: Mar 13, 2018 **Date Printed:** Mar 14, 2018
Version: 1.1 **Supersedes Date:** Oct 23, 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 Oral - Category 4
Carcinogenicity - Category 2
Serious Eye Damage - Category 1
Skin Irritation - Category 2
Specific Target Organ Toxicity - Repeated Exposure - Category 2

Pictograms



Signal Word

Danger

Hazard Statements - Health

Harmful if swallowed
Suspected of causing cancer.
Causes serious eye damage
Causes skin irritation
May cause damage to organs through prolonged or repeated exposure.

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.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.

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

Do not breathe dust/fume/gas/mist/vapors/spray.

Precautionary Statements - Response

IF SWALLOWED: Call a POISON CENTER or doctor, if you feel unwell.

Rinse mouth.

IF exposed or concerned: Get medical advice/attention.

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 ON SKIN: Wash with plenty of water and soap.

Specific treatment (see first-aid on the SDS).

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing. And wash it before reuse.

Get Medical advice/attention if you feel unwell.

Precautionary Statements - Storage

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
0000111-42-2	DIETHANOLAMINE	85%
0007732-18-5	WATER	15%

SECTION 4) FIRST-AID MEASURES

Inhalation

Symptoms of exposure may include coughing, wheezing, shortness of breath, difficult breathing, headache, nausea, vomiting and chest pain. If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice.

Eye Contact

Direct contact with liquid or vapor will cause severe eye irritation or chemical burns. Serious damage, even blindness, may result if treatment is delayed.

Avoid direct contact. Wear chemical protective gloves, if necessary. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for several minutes, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. Do not interrupt flushing. Take care not to rinse contaminated water into the unaffected eye or onto face. Immediately obtain medical attention.

Skin Contact

Direct contact with the liquid causes severe irritation with local discomfort or pain, redness and swelling prolonged contact may cause chemical burns, blister formation and possible tissue destruction.

Avoid direct contact. Wear chemical protective clothing, if necessary. As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately flush with lukewarm, gently flowing water for 15-20 minutes. Immediately obtain medical attention. Completely decontaminate clothing, shoes and leather goods before re-use or discard.

Ingestion

Swallowing can cause severe irritation and burns of the digestive tract with abdominal and chest pain, nausea, vomiting and diarrhea. Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

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

Small Fire : Dry chemical, foam, carbon dioxide, water-spray or alcohol-resistant foam. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Use water spray to cool fire-exposed containers.

Large Fire: Water spray, fog or alcohol-resistant foam.

Unsuitable Extinguishing Media

Do not use straight stream of water.

Specific Hazards in Case of Fire

Product can burn if heated (Flash point = 163°C).

During a fire, smoke may contain vaporized DEA which can be severely irritating to eyes and respiratory tract. Combustion products may include toxic nitrogen oxides, carbon monoxide, carbon dioxide and ammonia.

Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Containers may explode in fire.

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Move undamaged containers from immediate hazard area if it can be done safely. Stop spill/release if it can be done safely. Cool containers with flooding quantities of water until well after fire is out.

Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Large Fire: Dike fire-control water for later disposal; do not scatter the material

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

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. Inspect containers for leaks before handling. 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.

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

Store in dry, cool areas, out of direct sunlight and away from other sources of heat. Empty containers 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. Keep the smallest amount of material in work areas. Do not store on metal shelves. Store containers in plastic tubs or trays as secondary containment. Avoid rapid temperature changes in liquid storage areas. Store at temperatures above their respective freezing/melting point. Never store corrosives above eye level. Do not store in containers made of carbon steel, aluminum, copper, brass or other copper alloys.

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								

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

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

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density 9.06 lb/gal
 Specific Gravity 1.09

Appearance clear, colourless liquid
 Odor Description mild ammonia (fishy) odour

Odor Threshold	N/A
pH	11.5 (1M solution, 10%)
Melting Point	-2 °C
Low Boiling Point	118 °C
High Boiling Point	N/A
Flash Point	163 °C
Vapor Pressure	0.01 mmHg
Vapor Density	3.65 (Air = 1)
Evaporation Rate	<0.01
Upper Explosion Level	N/A
Lower Explosion Level	N/A
Water Solubility	completely soluble
Coefficient Water/Oil	-1.43 (n-octanol/water)
Viscosity	100 Centipoise (30°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.

Hazardous Reactions/Polymerization

Heating above 60°C in aluminum can result in corrosion and generation of flammable hydrogen gas.

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.

DEA 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 and aralkyl halides.

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 if swallowed

Aspiration Hazard

No Data Available

Carcinogenicity

Suspected of causing cancer.

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 skin irritation

Specific Target Organ Toxicity - Repeated Exposure

May cause damage to organs through prolonged or repeated exposure.

Specific Target Organ Toxicity - Single Exposure

No Data Available

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: 7.8 mg/L

96 Hr EC50 Selenastrum capricornutum: 2.1-2.3 mg/L

96 Hr LC50 Pimephales promelas: 4460-4980 mg/L

96 Hr LC50 Pimephales promelas: 1200-1580 mg/L

96 Hr LC50 Lepomis macrochirus: 600-1000 mg/L

48 Hr EC50 Daphnia magna: 55 mg/L

Mobility in Soil

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

Log soil organic carbon partition coefficient (log Koc) is estimated to be 0.60.

Bio-accumulative Potential

Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3).

Log octanol/water partition coefficient (log Pow) is -1.43.

Persistence and Degradability

Material is readily biodegradable.

Passes OECD test(s) for ready biodegradability.

Biodegradation under aerobic static laboratory conditions is high (BOD20 BOD28/ThoD greater than 40%).

Other Adverse Effects

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: UN3082

Proper shipping name: environmentally hazardous substance, liquid, N.O.S. (diethanolamine)

Hazard class: 9

Packaging group: III

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000111-42-2	DIETHANOLAMINE	85%	DSL,TSCA,CA_Prop65 - California Proposition 65,EU_EC_Inventory - EC Inventory
0007732-18-5	WATER	15%	DSL,TSCA,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; CANtrmg 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 1.1:

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