

## Monoethanolamine SDS Revision Date (mm/dd/yyyy): 09/13/2023

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# SAFETY DATA SHEET

#### **SECTION 1. IDENTIFICATION**

Product identifier used on the label		
:	Monoethanolamine	
Other means of identification :	Not available.	
Recommended use of the chemical and restrictions on use		
	Reagent; Chemical intermediat Use pattern: Professional use o Restriction on use: None knowr Carboxylic acid	nly
Name, address, and telephone number of the supplier:		Name, address, and telephone number of the manufacturer:
Comet Chemical Company Ltd.		Refer to supplier
3463 Thomas Street Innisfill, ON, Canada L9S 3W4		
Supplier's Telephone #	705-436-5580	
24 Hr. Emergency Tel #	GFL Environmental - 1-888-772	-2543
CECTIONA HAZADDO IDE	NETERON	

### SECTION 2. HAZARDS IDENTIFICATION

#### **Classification of the chemical**

Clear colourless liquid. Ammonia odour.

Most important hazards: Causes severe skin burns and eye damage. Harmful if swallowed. Suspected of causing cancer.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification : Acute toxicity, oral - Category 4 Skin corrosion - Category 1 Eye Damage - Category 1 Carcinogen - Category 2 Specific target organ toxicity, single exposure - Category 3 (respiratory)

#### Label elements

Hazard pictogram(s)



Signal Word

DANGER! Hazard statement(s)

> Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Suspected of causing cancer.



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#### Precautionary statement(s)

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection.

IF exposed or concerned: Get medical advice/attention. If swallowed: Rinse mouth. Do not induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. 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/physician.

Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Other hazards

Other hazards which do not result in classification: Ingestion may cause severe irritation to the mouth, throat and stomach. May be corrosive to metals. Contact with most metals will generate flammable hydrogen gas.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance with impurities

Chemical name	Common name and synonyms	<u>CAS #</u>	Concentration (% by weight)
Monoethanolamine	Ethanolamine	141-43-5	>99
Diethanolamine	DEA	111-42-2	<0.2

### SECTION 4. FIRST-AID MEASURES

#### Description of first aid measures

Ingestion	<ul> <li>Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Seek immediate medical attention/advice. Never give anything by mouth if victim is unconscious.</li> </ul>
Inhalation	<ul> <li>Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.</li> </ul>
Skin contact	<ul> <li>Take off all contaminated clothing immediately. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Seek immediate medical attention/advice. Wash contaminated clothing before reuse.</li> </ul>
Eye contact	<ul> <li>Immediately flush eyes with running water for at least 20 minutes. Seek immediate medical attention/advice.</li> </ul>



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#### Most important symptoms and effects, both acute and delayed

: Harmful if swallowed. Ingestion may cause severe irritation to the mouth, throat and stomach. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling. Causes serious eye damage. Can cause irritation, redness, tearing, and blurred vision and/or eye damage. Suspected of causing cancer.

### Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required. Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media	
Suitable extinguishing media	
:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Some chemical extinguishing agents may react with this material.
Unsuitable extinguishing medi	а
:	Do not use a solid water stream as it may scatter and spread fire.
Special hazards arising from th	e substance or mixture / Conditions of flammability
: Flammability classification (OS	Burning produces obnoxious and toxic fumes. Vapours are heavier than air, and may travel or be moved along the ground to an ignition source at locations distant from material handling.
	Not flammable.
· · · ·	
Hazardous combustion product	<b>s</b> Ammonia; hydrogen cyanide; Carbon oxides; Nitriles; Isocyanates; Nitrosamines;
•	formaldehyde ;Nitrogen oxides
Special protective equipment an Protective equipment for fire-fi	
:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full-body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.
Special fire-fighting procedure	
:	Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.
SECTION 6. ACCIDENTAL R	RELEASE MEASURES
Personal precautions, protectiv	e equipment and emergency procedures

	:	All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.
Environmental precautions	:	Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
P	-	For large spills, dike the area to prevent spreading.
Methods and material for containment and cleaning up		



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: Remove all sources of ignition. Ventilate area of release. Stop the flow of material, if this is without risk. Dike for water control. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13).

## Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the National Response Center in the United States (phone: 1-800-424-8802).
  - US CERCLA Reportable quantity (RQ): Diethanolamine (100 lbs / 45.4 kg)

#### SECTION 7. HANDLING AND STORAGE

#### Precautions for safe handling

	:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection.Do not ingest.Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing.Transfer only required amounts to work area. When mixing with water, stir small amounts in slowly. During preparation or dilution, always add liquid slowly to water and with constant stirring. When diluting, always add the product to water. Never add water to the product. Keep away from extreme heat and flame. Keep away from bases, metals and other incompatibles. Use only non-sparking tools. Keep container tightly closed when not in use. Wash thoroughly after handling.
Conditions for safe storage	:	Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or
Incompatible materials	:	leaks. May be corrosive to metals. Store in corrosion-resistant containers. Strong oxidizing agents; Strong acids; Diazotization agents; Halogenating agents; Alkali metals; Monomers (e.g. Styrene); Carbon dioxide; Nitrating agents.

#### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:				
Chemical Name	ACGIH T	LV	OSHA P	EL
	<u>TWA</u>	<u>STEL</u>	PEL	<u>STEL</u>
Monoethanolamine	3 ppm	6 ppm	3 ppm ; 6 mg/m <sup>3</sup>	N/Av
Diethanolamine	1 mg/m³ (inhalable fraction and vapor) (skin)	N/Av	3 ppm (final rule limit)	N/Av

#### Exposure controls

#### Ventilation and engineering measures

Respiratory protection	<ul> <li>Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.</li> <li>If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Confirmation of which type of respirator is most suitable for the intended application should be obtained from respiratory protection suppliers. Respirators should be selected based</li> </ul>
Skin protection	<ul> <li>on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.</li> <li>Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Advice should be sought from glove suppliers.</li> </ul>



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Eye / face protection	: Chemical splash goggles must be worn when handling this material. A full face shield
Other protective equipment	may also be necessary. Other equipment may be required depending on workplace standards. An eyewash
Other protective equipment	station and safety shower should be made available in the immediate working area.
General hygiene consideration	
	Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove and wash contaminated clothing before re-use. Do not take contaminated clothing home.
SECTION 9. PHYSICAL AN	D CHEMICAL PROPERTIES
Physical State	· Liquid
Colour	: Liquid. : Colorless
Odour	: Ammonia odour.
Odour threshold	: 2.6 ppm
pH	: 11.7 - 12.1
Melting Point/Freezing point	
Initial boiling point and boiling	
initial boining point and boining	: 170.8°C ( 339.4°F)
	96°C (204.8°F)
Flash point	- ( )
Flashpoint (Method)	: PMCC: Pensky Martens Closed Cup
Evaporation rate (BuAe = 1)	
Flammability	Not applicable.
Lower explosion or flammabi	ity limit (% by vol.) : 3%
Upper explosion or flammabi	-
	23.5%
Oxidizing properties	None known.
Explosive properties	: Not explosive
Vapour pressure	: 2 mm Hg
Relative vapour density	: 2.1
Relative density / Specific gra	
Relative density / Opecific gro	: 1.02
Solubility in water	: Soluble
Other solubility(ies)	Soluble in most organic solvents.
Partition coefficient: n-octand	I/water or Coefficient of water/oil distribution
A 4. 1. 141. 4	: N/Av
Auto-ignition temperature	: 410°C (770°F)
Decomposition temperature	
Viscosity	: N/Av
Particle characteristics	: Not applicable.
Volatiles (% by weight)	: Not available.
Volatile organic Compounds	•
Absolute pressure of contain	: N/Av
Ansolute pressure of contain	
	: N/Ap
Flame projection length	: N/Ap

Other physical/chemical comments

: None known or reported by the manufacturer.



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SECTION 10. STABILITY AND REACTIVITY		
Reactivity	: Not normally reactive. Contact with metals may release small amounts of flammable hydrogen gas.	
Chemical stability	: Stable under normal conditions.	
Possibility of hazardous re	eactions	
-	No dangerous reaction known under conditions of normal use.	
Conditions to avoid	: Avoid heat and open flame. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.	
Incompatible materials	Incompatible materials (see Section 7).	
Hazardous decomposition	products	
	: None known, refer to hazardous combustion products in Section 5.	

# SECTION 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure:

Routes of entry inhalation	:	YES
Routes of entry skin & eye	:	YES
Routes of entry Ingestion	:	YES
Routes of exposure skin absorption		

: NO

## Potential Health Effects:

### Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

	:	Inhalation of high concentrations of fumes or mists may cause severe irritation and corrosive damage to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing. Inhalation of extremely high concentrations could cause pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Prolonged overexposure can cause unconsciousness and death.
Sign and symptoms ingestion	n	
	:	May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.
Sign and symptoms skin	:	Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring.
Sign and symptoms eyes	:	Severe irritation, burns and possibly permanent eye damage may result from direct contact.
Potential Chronic Health Effe	cts	
	:	Chronic skin contact with low concentrations may cause dermatitis. Prolonged or repeated inhalation of fumes or vapours, may cause chronic lung effects, such as bronchitis.
Mutagenicity	:	Not expected to be mutagenic in humans.
Carcinogenicity	:	Carcinogenicity - Category 2 Suspected of causing cancer. Contains: Diethanolamine IARC Group 2B: Possibly carcinogenic to humans. ACGIH: A3 - Animal Carcinogen NTP: Not listed



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#### Reproductive effects & Teratogenicity

1	
Toxicological data	See below for toxicological data on the substance.
Synergistic materials	Not available.
	Pre-existing skin, eye and respiratory disorders.
Medical conditions aggravat	Not classified as specific target organ toxicity-repeated exposure. d by overexposure
	Specific target organ toxicity, single exposure - Category 3 (respiratory) May cause respiratory irritation.
Specific target organ effects	Eyes, skin, respiratory system and digestive system.
Sensitization to material	Not expected to cause reproductive effects. Not expected to be a skin or respiratory sensitizer.
	Not expected to equipe reproductive effects

	LC₅₀(4hr)	LDs	0
Chemical name	<u>inh, rat</u>	(Oral, rat)	<u>(Rabbit, dermal)</u>
Monoethanolamine	> 1210 mg/m³ (> 1.21 mg/L) (mist) (mouse)	1720 mg/kg	1000 mg/kg
Diethanolamine	N/Av	680 mg/kg	8180 mg/kg

#### Other important toxicological hazards

: None known or reported by the manufacturer.

# SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

: Harmful to aquatic life. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. See the following tables for the substance's ecotoxicity data.

## Ecotoxicity data:

la un alta u ta	0.10 //	Toxicity to Fish				
<u>Ingredients</u>	CAS #	LC50 / 96h	NOEC / 21 day	M Factor		
Monoethanolamine	141-43-5	349 mg/L (common carp)	1.2 mg/L/30 days (Japanese ricefish)	None.		
Diethanolamine	111-42-2	1370 mg/L (Fathead minnow)	N/Av	None.		

Ingredients	CAS #	Тохі	city to Daphnia	
		EC50 / 48h	NOEC / 21 day	M Factor
Monoethanolamine	141-43-5	50 mg/L Water flea	0.85 mg/L	None.
Diethanolamine	111-42-2	55 mg/L (Daphnia magna)	0.78 mg/L	None.



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Ingredients	CAS #	Toxicity to Algae				
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor		
Monoethanolamine	141-43-5	2.5 mg/L/72hr (Green algae)	1 mg/L/72hr	None.		
Diethanolamine	111-42-2	2.2 mg/L/96hr (Green algae)	N/Av	None.		

: Readily biodegradable.

Bioaccumulation potential : No data is available on the product itself.

<u>Components</u>	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Monoethanolamine (CAS 141-43-5)	-1.91 at 25 °C	3
Diethanolamine (CAS 111-42-2)	) -2.18 at 25 °C	no significant bioconcentratio
Mobility in soil :	No data is available on the product itself.	
Other Adverse Environmental a	ffeete	

**Other Adverse Environmental effects** 

: No additional information.

# SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal	: Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.
Methods of Disposal	<ul> <li>Dispose in accordance with all applicable federal, state, provincial and local regulations.</li> </ul>
RCRA	: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.



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## **SECTION 14. TRANSPORT INFORMATION**

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	UN2491	ETHANOLAMINE	8	III	
49CFR/DOT Additional information		or rail or road shipment if packaged in non-bulk containers by be used if product is in containers of 1.0 Litre or less, per			
ICAO/IATA	UN2491	Ethanolamine	8	III	
ICAO/IATA Additional information	Refer to ICAO/	ATA Packing Instruction	<u> </u>		
IMDG	UN2491	ETHANOLAMINE		- 111	
IMDG Additional information		d as a Limited Quantity when transported in containers no l g (66 pounds) gross mass.	arger than 5 L	(1.3 gallons	); in packages nc

# **SECTION 15 - REGULATORY INFORMATION**

### **US Federal Information:**

Components listed below are present on the following U.S. Federal chemical lists:

la sus dis sés	TSCA CAS # Inventory		CERCLA Reportable	SARA TITLE III: Sec. 302, Extremely	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical		
<u>Ingredients</u>	CAS #	Inventory	Quantity(RQ) (40 CFR 117.302):	Hazardous Substance, 40 CFR 355:	Toxic Chemical	de Minimis Concentration	
Monoethanolamine	141-43-5	Yes	None.	None.	No	N/Ap	
Diethanolamine	111-42-2	Yes	100 lb/ 45.4 kg	None.	Yes	1%	

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute Health Hazard; Chronic Health Hazard.

### US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Monoethanolamine	141-43-5	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Diethanolamine	111-42-2	Yes	Carcinogen	Yes	Yes	Yes	Yes	Yes	Yes



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## Canadian Information:

All ingredients are present on the DSL.

### International Information:

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Monoethanolamine	141-43-5	205-483-3	Present	Present	(2)-301	KE-20493	Present (01018)	HSR002984
Diethanolamine	111-42-2	203-868-0	Present	Present	(2)-354; (2)-302	KE-20959	Present (11481)	HSR002962

## **SECTION 16. OTHER INFORMATION**

Legend :	ACGIH: American Conference of Governmental Industrial Hygienists CAS: Chemical Abstract Services CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 CFR: Code of Federal Regulations DOT: Department of Transportation EPA: Environmental Protection Agency HMIS: Hazardous Materials Identification System HSDB: Hazardous Substances Data Bank IARC: International Agency for Research on Cancer Inh: Inhalation
	IUCLID: International Uniform Chemical Information Database MSHA: Mine Safety and Health Administration N/Ap: Not Applicable N/Av: Not Available
	NFPA: National Fire Protection Association NIOSH: National Institute of Occupational Safety and Health NTP: National Toxicology Program
	OSHA: Occupational Safety and Health Administration PEL: Permissible exposure limit RCRA: Resource Conservation and Recovery Act
	RTECS: Registry of Toxic Effects of Chemical Substances SARA: Superfund Amendments and Reauthorization Act STEL: Short Term Exposure Limit
	TDG: Canadian Transportation of Dangerous Goods Act & Regulations TLV: Threshold Limit Values TWA: Time Weighted Average
References :	<ul> <li>WHMIS: Workplace Hazardous Materials Identification System</li> <li>1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents &amp; Biological Exposure Indices</li> <li>2. ECHA - European Chemical Agency</li> </ul>
	<ol> <li>Canadian Centre for Occupational Health and Safety, CCInfoWeb databases</li> <li>Safety Data Sheets from manufacturer.</li> <li>US EPA Title III List of Lists</li> <li>California Proposition 65 List</li> </ol>
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#### Other special considerations for handling

: Provide adequate information, instruction and training for operators.



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