

Monoethanolamine

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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 intermediate. Use pattern: Professional use only Restriction on use: None known

Chemical family : Carboxylic acid

Name, address, and telephone number

Comet Chemical Company Ltd.

of the supplier:

Name, address, and telephone number of

the manufacturer:

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

#### 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	CAS#	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

Skin contact

: Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two Ingestion glasses of water to drink. Seek immediate medical attention/advice. Never give

anything by mouth if victim is unconscious.

Inhalation : 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.

: 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.

Immediately flush eyes with running water for at least 20 minutes. Seek immediate Eye contact

medical attention/advice.



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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 media

: Do not use a solid water stream as it may scatter and spread fire.

#### Special hazards arising from the substance or mixture / Conditions of flammability

: 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.

#### Flammability classification (OSHA 29 CFR 1910.106)

: Not flammable.

#### **Hazardous combustion products**

: Ammonia; hydrogen cyanide; Carbon oxides; Nitriles; Isocyanates; Nitrosamines; formaldehyde; Nitrogen oxides

# Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

: 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 procedures

: 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 RELEASE MEASURES

#### Personal precautions, protective 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. 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 leaks. May be corrosive to metals. Store in corrosion-resistant containers.

Incompatible materials

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 1	<u>LV</u>	OSHA PEL		
	<u>TWA</u>	STEL	PEL	<u>STEL</u>	
Monoethanolamine	3 ppm	6 ppm	3 ppm ; 6 mg/m³	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

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection

: 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 on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection

: Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Advice should be sought from glove suppliers.



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Eye / face protection : Chemical splash goggles must be worn when handling this material. A full face shield

may also be necessary.

Other protective equipment : Other equipment may be required depending on workplace standards. An eyewash

station and safety shower should be made available in the immediate working area.

General hygiene considerations

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 AND CHEMICAL PROPERTIES

Physical State : Liquid.
Colour : Colorless
Odour : Ammonia odour.

Odour threshold: 2.6 ppmpH: 11.7 - 12.1Melting Point/Freezing point: 10°C (50°F)

Initial boiling point and boiling range

: 170.8°C (339.4°F)

Flash point :  $96^{\circ}$ C (204.8°F)

Flashpoint (Method) : PMCC: Pensky Martens Closed Cup

Evaporation rate (BuAe = 1) : < 0.01

Flammability : Not applicable.

Lower explosion or flammability limit (% by vol.)

: 3%

Upper explosion or flammability limit (% by vol.)

: 23.5%

Oxidizing properties : None known.

Explosive properties : Not explosive
Vapour pressure : 2 mm Hg

Relative vapour density : 2.1 Relative density / Specific gravity

: 1.02

Solubility in water : Soluble

Other solubility(ies) : Soluble in most organic solvents.

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: N/Av

Auto-ignition temperature : 410°C (770°F)

Decomposition temperature : Not available.

Viscosity : N/Av

Particle characteristics : Not applicable.

Volatiles (% by weight) : Not available.

Volatile organic Compounds (VOC's)

: N/Av

Absolute pressure of container

: 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 reactions

: 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:

 $\begin{tabular}{lll} \textbf{Routes of entry inhalation} & : & YES \\ \textbf{Routes of entry skin \& eye} & : & YES \\ \textbf{Routes of entry Ingestion} & : & YES \\ \textbf{Routes of exposure skin absorption} \\ \end{tabular}$ 

: 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

: 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

ontact.

**Potential Chronic Health Effects** 

 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.

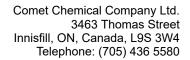
Carcinogenicity : Carcinogenicity - Category 2

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

: Not expected to cause reproductive effects.

Sensitization to material

: Not expected to be a skin or respiratory sensitizer. Specific target organ effects: Eyes, skin, respiratory system and digestive system.

Specific target organ toxicity, single exposure - Category 3 (respiratory)

May cause respiratory irritation.

Not classified as specific target organ toxicity-repeated exposure.

# Medical conditions aggravated by overexposure

Pre-existing skin, eye and respiratory disorders.

Synergistic materials

: Not available.

Toxicological data : See below for toxicological data on the substance.

	LCso(4hr)	LDs	50
Chemical name	inh, rat	(Oral, rat)	(Rabbit, dermal)
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 suo di cato	040#	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.		

<u>Ingredients</u>	CAS#	Toxicity 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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<u>Ingredients</u>	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.		

Persistence and degradability

: 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 Other Adverse Environmental effects

: No data is available on the product itself.

: 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** 

Dispose in accordance with all applicable federal, state, provincial and local regulations.

**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 y be used if product is in containers of 1.0 Litre or less, per			
ICAO/IATA	UN2491	Ethanolamine	8	III	S S S S S S S S S S S S S S S S S S S
ICAO/IATA Additional information	Refer to ICAO/I	ATA Packing Instruction			
IMDG	UN2491	ETHANOLAMINE		III	
IMDG Additional information		das a Limited Quantity when transported in containers no l g (66 pounds) gross mass.	arger than 5 L	(1.3 gallons	); in packages no

**Special precautions for user**: Keep away from heat and open flames. - No smoking. **Environmental hazards**: See ECOLOGICAL INFORMATION, Section 12.

# SECTION 15 - REGULATORY INFORMATION

# **US Federal Information:**

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

1	0.10 #	TSCA R		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:

<u>Ingredients</u>	CAS#	California Proposition 65		State "Right to Know" Lists					
	CAS#	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

Biological Exposure Indices

WHMIS: Workplace Hazardous Materials Identification System

: 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents &

2. ECHA - European Chemical Agency

3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases

4. Safety Data Sheets from manufacturer.

5. US EPA Title III List of Lists

6. California Proposition 65 List

7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

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**Revision Information**: (M)SDS sections updated: 1. PRODUCT AND COMPANY IDENTIFICATION 5.

FIRE-FIGHTING MEASURES 9. PHYSICAL AND CHEMICAL PROPERTIES 11.

TOXICOLOGICAL INFORMATION 15. REGULATORY INFORMATION

#### Other special considerations for handling

: Provide adequate information, instruction and training for operators.

### Prepared for:

Comet Chemical Company Ltd. 3463 Thomas Street Innisfill, ON L9S 3W4 Information (M-F 8:00-5:00): 705-436-5580

www.cometchemical.com

# COMET CHEMICAL COMPANY LTD.

# Prepared by:

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http://www.thecompliancecenter.com



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