COMET CHEMICAL COMPANY LTD.

Comet Chemical Company Ltd.
3463 Thomas Street
Innisfill, ON, Canada, L9S 3W4
Telephone: (705) 436 5580

SDS Revision Date (mm/dd/yyyy): 04/04/2024

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Triethanolamine 99%**

Other means of identification : Not available.

Recommended use of the chemical and restrictions on use

: Laboratory chemicals
Use pattern: Professional Use Only
Recommended restrictions: None known.

Chemical family : Amino alcohol

Name, address, and telephone number of the manufacturer:

Manufacturer's Telephone # :

Name, address, and telephone number of the supplier:

Comet Chemical Company Ltd.

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 to slightly hazy yellow liquid.

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:
Carcinogen - Category 2

Label elements

Hazard pictogram(s)

Signal Word

WARNING!

Hazard statement(s)

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.
Wear protective gloves/clothing and eye/face protection.
IF exposed or concerned: Get medical advice/attention.
Store locked up.
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 gastrointestinal irritation, nausea, vomiting and diarrhea. May be mildly irritating to skin, eyes and respiratory system. May cause an allergic skin reaction (e.g. hives, rash) in some hypersensitive individuals.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance with impurities

Chemical name	Common name and synonyms	CAS #	Concentration (% by weight)
Triethanolamine	TEA	102-71-6	**99.90**
Diethanolamine	DEA	111-42-2	**0.12**

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

Ingestion : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person. Call a physician.

Inhalation : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Obtain medical attention if symptoms develop and persist.

Skin contact : Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If irritation or symptoms develop, seek medical attention.

Eye contact : Immediately flush eyes with running water for at least 5 to 10 minutes. If irritation persists, seek prompt medical attention.

Most important symptoms and effects, both acute and delayed

: May cause mild eye irritation. Symptoms may include stinging and tearing. May cause mild skin irritation. Symptoms may include mild redness and swelling. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause an allergic skin reaction (e.g. hives, rash) in some hypersensitive individuals. Suspected of causing cancer.

Indication of any immediate medical attention and special treatment needed

: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

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 may produce irritating, toxic and obnoxious fumes.

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Flammability classification (OSHA 29 CFR 1910.106)

: Not flammable.

Hazardous combustion products

: Carbon 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

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. 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

: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Restrict access to area until completion of clean-up.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Methods and material for containment and cleaning up

: Ventilate area of release. Stop spill or leak at source if safely possible. 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

: In Canada: For 24-hour emergency assistance, call: 1-613-996-6666 (CANUTEC). 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 in well-ventilated areas.Wear protective gloves/clothing and eye/face protection. Avoid breathing vapours or mists. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from incompatibles. Keep containers 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 incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials : Oxidizing agents; Acids; Nitrating agents.;Halogenating agents ;Alkali metals ;Carbon dioxide . .

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Triethanolamine	5 mg/m³	N/Av	N/Av	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 in a well-ventilated area. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : If airbourne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Advice should be sought from respiratory protection specialists. 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 : Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.

Eye / face protection : Chemical goggles are recommended when there is a potential for splashing.

Other protective equipment : Wear sufficient clothing to prevent skin contact. Depending on conditions of use, an impervious apron should be worn. 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. Wash contaminated clothing before reuse. 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 soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State : Liquid
Colour : Clear to slightly hazy yellow
Odour : Mild ammonia.
Odour threshold : Not available.
pH : 10.8
Melting Point/Freezing point : 20.5°C (68.9°F)
Initial boiling point and boiling range
: 335°C (635°F)
Flash point : >140°C (>284°F)
Flashpoint (Method) : closed cup
Evaporation rate (BuAe = 1) : N/Av
Flammability : Not applicable.
Lower explosion or flammability limit (% by vol.)
: Not available.

Upper explosion or flammability limit (% by vol.)
: Not available.

Oxidizing properties : None known.
Explosive properties : Not explosive
Vapour pressure : Not available.
Relative vapour density : 5.14
Relative density / Specific gravity
: 1.124

Solubility in water : Soluble (100%)
Other solubility(ies) : Soluble in most organic solvents.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution
: N/Av

Auto-ignition temperature : 350°C (662°F)
Decomposition temperature : Not available.
Viscosity : 313 mPa.s (313 centipoises) at 40°C
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.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive.
Chemical stability : Material is stable under normal conditions.
Possibility of hazardous reactions
: Hazardous polymerization does not occur.

Conditions to avoid : Avoid excessive heat, sparks and open flame. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials : Oxidizing agents; Acids.
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

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Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

: If product is heated or mists are formed, inhalation may cause irritation to the nose, throat and respiratory tract.

Sign and symptoms ingestion

: Ingestion may irritate digestive tract and cause nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).

Sign and symptoms skin : Direct skin contact may result in little or no irritation.

Sign and symptoms eyes : May cause mild transient irritation.

Potential Chronic Health Effects

: Prolonged or repeated contact may cause drying, cracking and defatting of the skin.

Mutagenicity : Not expected to be mutagenic in humans.

Carcinogenicity : 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). Classification Carcinogenicity- Category 2 Suspected of causing cancer. Contains :Diethanolamine.

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 : Target Organs::Eyes, skin, respiratory system, digestive system, central nervous system.

This material is not classified as hazardous under U.S. OSHA regulations (29 CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Medical conditions aggravated by overexposure

: None known.

Synergistic materials : Not available.

Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Chemical name	LC_{50}(4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Triethanolamine	N/Av	6110 mg/kg	> 19 870 mg/kg
Diethanolamine	N/Av	680 mg/kg	8180 mg/kg

Other important toxicological hazards

: None known.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Not expected to be harmful to aquatic organisms. Do not allow material to contaminate ground water system. See the following tables for individual ingredient ecotoxicity data.

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Ecotoxicity data:

Ingredients	CAS #	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Triethanolamine	102-71-6	11 800 mg/L (Fathead minnow)	N/Av	None.
Diethanolamine	111-42-2	1370 mg/L (Fathead minnow)	N/Av	None.

Ingredients	CAS #	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Triethanolamine	102-71-6	1386 mg/L/24hr (Daphnia magna)	16 mg/L	None.
Diethanolamine	111-42-2	55 mg/L (Daphnia magna)	0.78 mg/L	None.

Ingredients	CAS #	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Triethanolamine	102-71-6	169 mg/L/96hr (Green algae)	N/Av	None.
Diethanolamine	111-42-2	2.2 mg/L/96hr (Green algae)	N/Av	None.

Persistence and degradability
: Readily biodegradable.

Bioaccumulation potential : No information available.

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Triethanolamine (CAS 102-71-6)	-1.59	<3.9
Diethanolamine (CAS 111-42-2)	-2.16	3.16

Mobility in soil : No information available.

Other Adverse Environmental effects
: No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7.

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	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	Not regulated	none	
TDG Additional information	None.				

Special precautions for user : None known or reported by the manufacturer.
Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.

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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

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

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de Minimis Concentration
Triethanolamine	102-71-6	Yes	N/Ap	N/Ap	No	No
Diethanolamine	111-42-2	Yes	100 lb/ 45.4 kg	None.	Yes	No

SARA TITLE III: Sec. 311 and 312 SDS Requirements, 40 CFR 370 Hazard Classes: Not a hazard under normal conditions of use. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

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Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Triethanolamine	102-71-6	No	N/Ap	No	Yes	Yes	Yes	Yes	Yes
Diethanolamine	111-42-2	Yes	Carcinogen	Yes	Yes	Yes	Yes	Yes	Yes

Canadian Information:

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.
Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (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
Triethanolamine	102-71-6	203-049-8	Present	Present	(2)-308	KE-25940	Present	HSR002785
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
CSA: Canadian Standards Association
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
LC: Lethal Concentration
LD: Lethal Dose
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
OECD: Organisation for Economic Co-operation and Development
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
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

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References : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
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

Preparation Date (mm/dd/yyyy) : 08/30/2015

Reviewed Date SDS (dd/mm/yyyy) : 04/04/2024

Revision No. : 2

Revision Information : Updated SDS to comply with new 2023 WHMIS format.

Other special considerations for handling : Provide adequate information, instruction and training for operators.

HMIS Rating : *- Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: 0 *Flammability:* *Reactivity:* 0

NFPA Rating : 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: 0 *Flammability:* *Instability:* 0 *Special Hazards:* None.

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: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com	ICC ComplianceCenter

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