



<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Other hazards</b>	None known.
<b>Supplemental information</b>	1.2% of the mixture consists of component(s) of unknown acute oral toxicity. 1.2% of the mixture consists of component(s) of unknown acute dermal toxicity. 23.59% of the mixture consists of component(s) of unknown acute inhalation toxicity.

The classified hazards shown on this SDS are associated with the product concentrate. These hazards are not expected under recommended use conditions and dilution.

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
MONOETHANOLAMINE		141-43-5	≤15
TRIETHANOLAMINE		102-71-6	≤10
UNDECANEDIOIC ACID		1852-04-6	≤3
Other components below reportable levels			≤80

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist. Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Skin contact</b>	Rinse skin with water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth thoroughly. Drink 1 or 2 glasses of water. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
<b>Most important symptoms/effects, acute and delayed</b>	Direct contact with eyes may cause temporary irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
<b>General information</b>	If exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Alcohol resistant foam. Powder. Carbon dioxide (CO <sub>2</sub> ). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	Not applicable, non-combustible.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Wear suitable protective equipment.
<b>Fire fighting equipment/instructions</b>	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials. In the event of fire and/or explosion do not breathe fumes.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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**Methods and materials for containment and cleaning up**

Local authorities should be advised if significant spillages cannot be contained. Use water spray to reduce vapors or divert vapor cloud drift. This product is miscible in water. Clean up in accordance with all applicable regulations.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

**7. Handling and storage****Precautions for safe handling**

Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Do not allow material to freeze. If frozen, product may separate. Thaw completely at room temperature and stir thoroughly prior to use.

**8. Exposure controls/personal protection****Occupational exposure limits****US. ACGIH Threshold Limit Values**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	6 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	5 mg/m <sup>3</sup>
MONOETHANOLAMINE (CAS 141-43-5)	TWA	3 ppm

**Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	15 mg/m <sup>3</sup>
		6 ppm
	TWA	7.5 mg/m <sup>3</sup>
TRIETHANOLAMINE (CAS 102-71-6)	TWA	5 mg/m <sup>3</sup>
MONOETHANOLAMINE (CAS 141-43-5)	TWA	3 ppm

**Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	6 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	5 mg/m <sup>3</sup>
MONOETHANOLAMINE (CAS 141-43-5)	TWA	3 ppm

**Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	6 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	5 mg/m <sup>3</sup>
MONOETHANOLAMINE (CAS 141-43-5)	TWA	3 ppm

**Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	6 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	3.1 mg/m3
MONOETHANOLAMINE (CAS 141-43-5)	TWA	3 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	0.5 ppm

**Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)**

	Type	Value
MONOETHANOLAMINE (CAS 141-43-5)	STEL	15 mg/m3
	TWA	6 ppm
TRIETHANOLAMINE (CAS 102-71-6)	TWA	7.5 mg/m3
MONOETHANOLAMINE (CAS 141-43-5)	TWA	5 mg/m3
	TWA	3 ppm

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Wear safety glasses with side shields (or goggles). Do not get in eyes. Eye wash fountain is recommended.

**Skin protection****Hand protection**

Use protective gloves made of: Nitrile.

**Other**

Wear appropriate chemical resistant clothing.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

When using, do not eat, drink or smoke. Do not get in eyes, on skin, on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**9. Physical and chemical properties****Appearance**

CLEAR

**Physical state**

Liquid.

**Form**

Liquid.

**Color**

Not available.

**Odor**

CHEMICAL

**Odor threshold**

Not available.

**pH**

10.1

**Melting point/freezing point**

< 32 °F (< 0 °C)

**Initial boiling point and boiling range**

> 212 °F (> 100 °C)

**Flash point**

Not Applicable

**Evaporation rate**

Like water when diluted

**Flammability (solid, gas)**

Not applicable.

**Upper/lower flammability or explosive limits****Flammability limit - lower (%)**

Not available.

Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	100 % Water Miscible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
pH in aqueous solution	8.8 @ 5%
Specific gravity	1.096

## 10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials.
Incompatible materials	Acids. Oxidizing agents. Do not add sodium nitrite or other nitrosating agents which may form cancer causing nitrosamines.
Hazardous decomposition products	Smoke, fumes, oxides of nitrogen, and oxides of carbon

## 11. Toxicological information

### Information on likely routes of exposure

Inhalation	Not classified.
Skin contact	Causes skin irritation.
Eye contact	Causes eye irritation.
Ingestion	Not classified.

**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation.

### Information on toxicological effects

**Acute toxicity** Not known.

Components	Species	Test Results
MONOETHANOLAMINE (CAS 141-43-5)		
<u>Acute</u>		
<b>Dermal</b>		
LD50	Rabbit	1025 mg/kg
TRIETHANOLAMINE (CAS 102-71-6)		
<u>Acute</u>		
<b>Dermal</b>		
<i>Liquid</i>		
LD50	Rabbit	> 2000 mg/kg

Components	Species	Test Results
<b>Oral</b> <i>Liquid</i> LD50	Rat	4190 mg/kg
UNDECANEDIOIC ACID (CAS 1852-04-6)		
<b>Acute</b> <b>Dermal</b> <i>Solid</i> LD50	Rabbit	> 3000 mg/kg ATE

\* Estimates for product may be based on additional component data not shown.

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes eye irritation.

**Respiratory or skin sensitization**

**Canada - Alberta OELs: Irritant**

MONOETHANOLAMINE (CAS 141-43-5) Irritant

TRIETHANOLAMINE (CAS 102-71-6) Irritant

**Canada - Quebec OELs: Sensitizer**

TRIETHANOLAMINE (CAS 102-71-6) Sensitizer.

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

TRIETHANOLAMINE (CAS 102-71-6) 3 Not classifiable as to carcinogenicity to humans.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not an aspiration hazard.

**Chronic effects** Not classified.

**Further information** The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

**12. Ecological information**

**Ecotoxicity** Contains a substance which causes risk of hazardous effects to the environment.

Components	Species	Test Results
MONOETHANOLAMINE (CAS 141-43-5)		
<b>Aquatic</b>		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)
		114 - 196 mg/l, 96 hours
TRIETHANOLAMINE (CAS 102-71-6)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Ceriodaphnia dubia)
		565.2 - 658.3 mg/l, 48 hours
<i>Acute</i>		
Fish	LC50	Bluegill (Lepomis macrochirus)
		450 - 1000 mg/l, 96 hours
UNDECANEDIOIC ACID (CAS 1852-04-6)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Daphnia
		220 mg/l, 48 hours

Components	Species	Test Results
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) 200 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

#### Persistence and degradability

#### Bioaccumulative potential

##### Partition coefficient n-octanol / water (log Kow)

MONOETHANOLAMINE	-1.31
TRIETHANOLAMINE	-2.3

**Mobility in soil** This product is miscible in water.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

#### TDG

Not regulated as dangerous goods.

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

### 15. Regulatory information

**Canadian regulations** This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

#### Controlled Drugs and Substances Act

Not regulated.

#### Export Control List (CEPA 1999, Schedule 3)

Not listed.

#### Greenhouse Gases

Not listed.

#### Precursor Control Regulations

Not regulated.

#### International regulations

##### Stockholm Convention

Not applicable.

##### Rotterdam Convention

Not applicable.

##### Kyoto protocol

Not applicable.

##### Montreal Protocol

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories**

Country(s) or region	Inventory name	On inventory or exempt (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**16. Other information****Issue date** 05-24-2017**Version #** 01**NFPA ratings**  
Health: 1  
Flammability: 0  
Instability: 0**Disclaimer**  
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.**Revision information**  
Product and Company Identification: Product and Company Identification  
Hazards Identification: US Hazard Categories  
Composition / Information on Ingredients: Ingredients  
Physical & Chemical Properties: Multiple Properties  
Transport Information: Proper Shipping Name/Packing Group  
Regulatory Information: United States  
Material Attributes & Uses; Experimental Data: Product Uses  
HazReg Data: North America  
GHS: Classification