

SAFETY DATA SHEET

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TRIETHANOLAMINE 99%

Version 1.1 Revision Date: 04/22/2016 SDS Number: 400001020109 Date of last issue: 07/15/2015
Date of first issue: 07/15/2015

SECTION 1. IDENTIFICATION

Product name : TRIETHANOLAMINE 99%

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America
Telephone : TechInfo: (281) 719-7780
E-mail address of person responsible for the SDS : MSDS@huntsman.com
Emergency telephone : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Intermediate
Component of a Polyurethane System.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Triethanolamine	102-71-6	95 - 100

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.

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- If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
- In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Do not induce vomiting without medical advice.
If a person vomits when lying on his back, place him in the recovery position.
Obtain medical attention.
- Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : No data is available on the product itself.
- Specific hazards during fire fighting : No data is available on the product itself.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Standard procedure for chemical fires.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Use personal protective equipment.
- Environmental precautions : No special environmental precautions required.
Try to prevent the material from entering drains or water

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courses.

Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).

Neutralize with acid.
Wipe up with absorbent material (e.g. cloth, fleece).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.

Conditions for safe storage : Store in original container.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Materials to avoid : Keep away from oxidizing agents.
Keep away from strong acids.
Keep away from strong bases.
Keep away from metals.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Triethanolamine	102-71-6	TWA	5 mg/m ³	ACGIH

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

Material : butyl-rubber
Break through time : > 8 h

Nitrile rubber

Remarks : The selected protective gloves have to satisfy the

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specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.

For prolonged or repeated contact use protective gloves.

- Eye protection : Safety glasses with side-shields
Eye wash bottle with pure water
- Skin and body protection : Lab coat
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Protective suit
- Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
General industrial hygiene practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : viscous liquid
- Color : light yellow
- Odor : ammoniacal
- Odor Threshold : No data available
- pH : 11, Concentration: 20 g/l (20 °C)
- Freezing point : 20.5 °C
- Melting point : 20.5 °C
- Boiling point : 335.4 - 360 °C
Decomposition: yes
- 336.1 °C
(1,013.25 hPa)
Decomposition: yes
- Flash point : 193 °C
Method: ISO 2719, Pensky-Martens closed cup
- Evaporation rate : < 0.1
- Flammability (solid, gas) : No data is available on the product itself.
- Upper explosion limit : 7.2 %(V)
- Lower explosion limit : 3.6 %(V)

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Vapor pressure : < 0.0003 hPa (21 °C)

Relative vapor density : 5.2

Relative density : 1.125 (20 °C)

Density : 1.125 g/cm³ (20 °C)

Bulk density : No data available

Solubility(ies)
Water solubility : > 1,000 g/l completely miscible (20 °C)

Solubility in other solvents : partly soluble
Solvent: Methanol

Partition coefficient: n-octanol/water : No data is available on the product itself.

Autoignition temperature : ca.
330 °C

Decomposition temperature : > 270 °C
Method: Other guidelines

> 250 °C
Method: Isoperibol Lütolf

> 120 °C
Method: Dewar

Viscosity
Viscosity, dynamic : 934 mPa.s (20 °C)

Viscosity, kinematic : 527 mm²/s (25 °C)

Explosive properties : Not applicable

Oxidizing properties : None.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Self-heating substances : No data available

: No data available

Molecular weight : 149.19 g/mol

SECTION 10. STABILITY AND REACTIVITY

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Reactivity	: Stable under recommended storage conditions.
Chemical stability	: The product is chemically stable.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use. No hazards to be specially mentioned.
Conditions to avoid	: No data available
Incompatible materials	: No data available
Hazardous decomposition products	: Carbon monoxide Carbon dioxide (CO ₂) Nitrogen oxides (NO _x)

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity**Ingredients:**

Triethanolamine:

Acute oral toxicity/Ingredients : LD50 (Rat, male and female): 6,400 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : No data available

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Product:**

Remarks: According to the classification criteria of the European Union, the product is not considered as being a skin irritant.

Serious eye damage/eye irritation**Product:**

Remarks: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

Respiratory or skin sensitization**Product:**

Remarks: No data available

Assessment: No data available

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Germ cell mutagenicity**Ingredients:**

Triethanolamine:

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Concentration: 0 - 1500 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : No data available

Carcinogenicity**Ingredients:**

Triethanolamine:

Species: Rat, (male and female)

Application Route: Dermal

Exposure time: 103 weeks

Dose: 250 mg/kg

Frequency of Treatment: 5 daily

Method: OECD Test Guideline 451

Result: negative

Carcinogenicity - Assessment : No data available

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Ingredients:**

Triethanolamine:

Effects on fertility

: Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

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Ingredients:

Triethanolamine:

Effects on fetal development : Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): > 1,000 mg/kg body weight
Method: OECD Test Guideline 421
Result: No teratogenic effects.

Species: Rat
Application Route: Dermal
General Toxicity Maternal: NOAEL (No observed adverse effect level): 75 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Species: Rabbit
Application Route: Dermal
General Toxicity Maternal: NOAEL (No observed adverse effect level): 10 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Repeated dose toxicity**Ingredients:**

Triethanolamine:

Species: Rat, male and female
NOEC: 1000 mg/kg, 500 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 672 h
Method: OECD Test Guideline 412

Species: Rat, male and female
NOEC: 125 - 500 mg/kg, 420 mg/m³
Application Route: Skin contact
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 6 h
Method: Subchronic toxicity

Repeated dose toxicity - Assessment : No data available

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Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information**Product:**

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Ingredients:**

Triethanolamine:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 11,800 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water

Ingredients:

Triethanolamine:
Toxicity to daphnia and other : EC50 (Ceriodaphnia dubia (Water flea)): 609.88 mg/l
aquatic invertebrates Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Ingredients:

Triethanolamine:

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Toxicity to algae : ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 512 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: DIN 38412

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Ingredients:

Triethanolamine:
 Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 16 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water

M-Factor (Chronic aquatic toxicity) : No data available

Ingredients:

Triethanolamine:
 Toxicity to bacteria : EC50 (activated sludge): > 1,000 mg/l
 Exposure time: 3 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment
 Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:
 No data available

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Persistence and degradability

Biodegradability - Product : Inoculum: activated sludge
Concentration: 5.7 mg/l
Result: Readily biodegradable.
Biodegradation: ca. 100 %
Exposure time: 5 d

Biochemical Oxygen Demand (BOD) : No data available

Ingredients:

Triethanolamine:
Chemical Oxygen Demand (COD) : 1600 mgO₂/g
BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Ingredients:**

Triethanolamine:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 3.9
Exposure time: 42 d
Test substance: Fresh water
Method: flow-through test

Ingredients:

Triethanolamine:
Partition coefficient: n-octanol/water : log Pow: -2.3 (25 °C)
pH: 7.1

Mobility in soil

Mobility : No data available

Ingredients:

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Triethanolamine:
Distribution among environmental compartments : Koc: 18.
Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : There is no data available for this product.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Empty remaining contents.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**International Regulation**

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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 applicable for product as supplied.

Domestic regulation**DOT Classification**

Not regulated as dangerous goods

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know**CERCLA Reportable Quantity**

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
DIETHANOLAMINE (DELA)	111-42-2	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

California Prop 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

2,2'-iminodiethanol

111-42-2

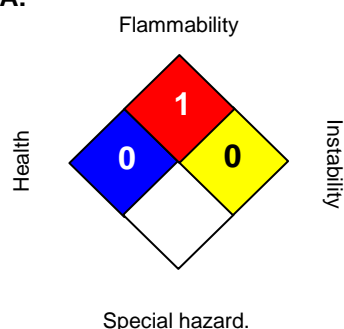
The ingredients of this product are reported in the following inventories:

CH INV : The mixture contains substances listed on the Swiss Inventory
 TSCA : On TSCA Inventory
 DSL : All components of this product are on the Canadian DSL.
 AICS : On the inventory, or in compliance with the inventory

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NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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