Triethanolamine 99

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
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SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Product name	:	Triethanolamine 99
CAS	:	102-71-6
Synonym	:	2,2',2''-nitrilotriethanol; ethanol, 2,2',2''-nitrilotris-; TEA; triethanolamine; trolamine

1.2. Recommended use and restrictions on use

Product usage	:	Manufacture of substance, formulation and repackaging of substances and mixtures including use of cement as grinding aid, intermediate, cleaning agents, other consumer uses, gas scrubbing/treatment, water treatment chemicals including anticorrosion treatment, laboratories, construction chemicials, metal working fluids/rolling oils, textile processing, additive in PU systems, biocidal products (non active), coatings, agrochemicals. No uses advised against.

1.3. Supplier

INEOS Oxide
Block 5501
21255A Louisiana Hwy. 1 South
Plaquemine, Louisiana 70764
USA
T (866) 865-4765
www.ineosoxide.com

INEOS Derivatives Lavera SAS
Avenue de la bienfaisance BP6
FR-13117 Lavera
France
T +33 4 42 35 80 00

1.4. Emergency telephone number

Emergency number	:	Chemtrec: 1-703-572-3887 (Outside the US) Chemtrec: 1 (800) 424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Reproductive toxicity Category 2	H361	Suspected of damaging fertility or the unborn child (Inhalation, oral, Dermal)

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US)	:	Warning
Hazard statements (GHS US)	:	H361 - Suspected of damaging fertility or the unborn child (Inhalation, oral, Dermal)
Precautionary statements (GHS US)	:	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P308+P313 - If exposed or concerned: Get medical advice/attention. P405 - Store locked up. P501 - Dispose of contents / container by a local waste disposal company according to regional regulations.

2.3. Other hazards which do not result in classification

Prolonged exposure may cause slight eye and skin irritation.

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	GHS US classification
2,2',2"-nitrilotriethanol	CAS-No.: 102-71-6	≥ 99	Not classified
2,2'-iminodiethanol	CAS-No.: 111-42-2	< 0.5	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Repr. 2, H361 STOT RE 2, H373
MEA	141-43-5	< 0.1	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin corr. 1B, H314 STOT SE 3, H335

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, consult a doctor/medical service.

First-aid measures after inhalation : Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

First-aid measures after skin contact : If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water.

First-aid measures after eye contact : Rinse immediately with (lukewarm) water. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult a doctor/medical service.

First-aid measures after ingestion : Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : Red skin.

Symptoms/effects after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Coughing.

Symptoms/effects after ingestion : Nausea. Vomiting. Diarrhoea.

Symptoms/effects after eye contact : Redness of the eye tissue.

4.3. Immediate medical attention and special treatment, if necessary

If applicable and available it will be listed below.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher, Quick-acting class B foam extinguisher, Quick-acting CO2 extinguisher. Water spray if puddle cannot expand.

Unsuitable extinguishing media : Water; risk of puddle expansion.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Gloves. Protective clothing. Heat/fire exposure: self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : No naked flames. Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment : Gloves. Protective clothing. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite, kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Gas/vapour heavier than air at 20°C. Observe normal hygiene standards. Keep container tightly closed.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Meet the legal requirements. Store in a dry area. Store in a dark area. Keep container in a well-ventilated place. Protect against frost. May be stored under inert gas.

Incompatible products : Oxidizing agent. Strong acids.

Incompatible materials : Metals. Heat sources. Wtaer/moisture

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2,2',2''-nitrilotriethanol (102-71-6)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Triethanolamine
ACGIH OEL TWA	5 mg/m³
Remark (ACGIH)	TLV® Basis: Eye & skin irr
Regulatory reference	ACGIH 2023

2,2'-iminodiethanol (111-42-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Diethanolamine
ACGIH OEL TWA	1 mg/m³ (IFV - Inhalable fraction and vapor)
Remark (ACGIH)	TLV® Basis: Liver & kidney dam. Notations: Skin; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2023

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Facilities utilizing or storing this material should be equipped with general or local exhaust ventilation to control airborne levels of hazardous substances below the exposure guidelines listed above. Ventilation system should be made of corrosion-resistant material. Personal Protective Equipment (PPE) should be used as back-up protection to engineering controls.If engineering controls and work practices are not effective in controlling exposure to this material or if adverse health symptoms are experienced, then wear suitable personal protection equipment including approved respiratory protection

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses. Wear chemical safety goggles. If splashing is possible wear a face shield.

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance	:	Oily. Viscous.
Color	:	Colorless to light yellow
Odor	:	Mild, Ammonia
Odor threshold	:	No data available
pH	:	11 (25% aqueous solution)
Melting point	:	20.5 °C; 68°F
Freezing point	:	20.5 °C; 68°F
Boiling point	:	336 °C; 636.8°F 1013 hPa
Flash point	:	179 °C; 354.2°F Closed cup, 1013 hPa
Relative evaporation rate (butyl acetate=1)	:	< 0.01
Flammability (solid, gas)	:	Not flammable.
Vapor pressure	:	< 0.01 hPa 20°C
Relative vapor density at 20°C	:	5.2 Calculated
Relative density	:	1.13 20°C (water=1)
Relative density of saturated gas/air mixture	:	1
Density	:	1125 kg/m³ 20°C
Solubility	:	Water: Complete Ethanol: Complete Acetone: Complete
Partition coefficient n-octanol/water (Log Pow)	:	-1.9 Experimental value, OECD 107, 25°C
Auto-ignition temperature	:	324 °C; 615.2°F 1013 hPa
Decomposition temperature	:	No data available in the literature
Viscosity, kinematic	:	810.1 mm²/s 20°C, DIN 53019
Viscosity, dynamic	:	911 mPa·s 20°C, DIN 53019
Explosion limits	:	No data available
Explosive properties	:	No data available.
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Temperature above flashpoint: higher fire/explosion hazard. Basic reaction.

10.2. Chemical stability

Unstable on exposure to light. Hygroscopic. Unstable on exposure to air.

10.3. Possibility of hazardous reactions

Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts exothermically with (some) acids. Reacts with (some) metals and their compounds. Forms with nitrites carcinogenic nitrosamines. Contact with nitrosating agents under acidic conditions such as nitrous acid, nitrite or nitrogen oxides, can form nitrosamines some of which are potent carcinogens.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

Oxidizing agent. Strong acids. Metals. Incompatible with water, humid air.

10.6. Hazardous decomposition products

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Triethanolamine 99	
LD50 oral rat	6400 mg/kg body weight Equivalent to OECD 401
LD50 dermal rabbit	> 2000 mg/kg body weight Equivalent to OECD 402
LC0 Inhalation(vapour) - Rat	1.8 mg/m³ 8h, Equivalent to OECD 403

Skin corrosion/irritation : Not classified
pH: 11 (25% aqueous solution)

Serious eye damage/irritation : Not classified
pH: 11 (25% aqueous solution)

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Triethanolamine 99	
NOAEL (chronic,oral,animal/male,2 years)	1333 mg/kg body weight

Reproductive toxicity : Suspected of damaging fertility or the unborn child (Inhalation, oral, Dermal).

Triethanolamine 99	
NOAEL – Developmental toxicity (oral)	> 450 mg/kg body weight OECD 414
NOAEL – Maternal toxicity (oral)	120 mg/kg body weight OECD 414
NOAEL – Effects on fertility (oral)	> 1000 mg/kg body weight OECD 414

STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Triethanolamine 99	
NOAEL (oral,rat,90 days)	1000 mg/kg bodyweight/day Equivalent to OECD 408
NOAEL (dermal,rat/rabbit,90 days)	125 – 500 mg/kg bodyweight/day Equivalent to OECD 411

Aspiration hazard : Not classified
Viscosity, kinematic : 810.1 mm²/s 20°C, DIN 53019

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Triethanolamine 99	
LC50 - Fish [1]	11800 mg/l 96h, Pimephales promelas
EC50 - Crustacea [1]	610 mg/l 48h, Ceriodephnia dubia
ErC50 algae	512 mg/l 72h, Desmodesmus subpicatus
NOEC (chronic)	16 mg/l Daphnia Magna

12.2. Persistence and degradability

Triethanolamine 99	
Biodegradation water	100 % 5 days, OECD 301B

12.3. Bioaccumulative potential

Triethanolamine 99	
BCF - Fish [1]	< 3.9 l/kg 6 weeks, Cyprinus carpio
Partition coefficient n-octanol/water (Log Kow)	-1.9 Experimental value, OECD 107, 25°C

12.4. Mobility in soil

Triethanolamine 99	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.3 – 3.7 Calculated value

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No : UN3082
UN-No. (TDG) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s.
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 9
Hazard labels (DOT) : 9

TDG

Transport hazard class(es) (TDG) : Not applicable

IMDG

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT) : III
Packing group (TDG) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN3082

DOT Special Provisions (49 CFR 172.102) : 8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies.
146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.
173 - An appropriate generic entry may be used for this material.
335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.
IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx) : 155
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : No Limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : No Limit
DOT Vessel Stowage Location : A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Reportable Quantity : 100 lbs (45.4 kg)

TDG
Emergency Response Guide (ERG) Number : 171

IMDG
No data available

IATA
No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Triethanolamine: Category Z
Diethanolamine: Category Y

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.		
2,2'-iminodiethanol	CAS-No. 111-42-2	< 0.5%

2,2'-iminodiethanol (111-42-2)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	100 lb

15.2. International regulations

National regulations

2,2',2''-nitrilotriethanol (102-71-6)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

2,2'-iminodiethanol (111-42-2)
Listed on IARC (International Agency for Research on Cancer) Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

⚠ **WARNING:** This product can expose you to Diethanolamine, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases	
H361	Suspected of damaging fertility or the unborn child

Safety Data Sheet (SDS), USA - Toxyscan

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.