

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

QUANTUM Specialty Ethanolamines® Trolamine 99 NF

Other means of identification:

87736

1.2 Recommended use:

Chemical raw material for industrial, professional and consumer uses including pharmaceutical excipients and consumer products for personal care.

Restrictions on use: None identified. Keep out of reach of children.

1.3 Supplier:

INEOS Oxide
Block 5501
21255 A Louisiana Hwy. 1 South
Plaquemine, LA
70764
(866) 865-4767
www.ineosoxide.com

1.4 Emergency Phone No.:

CHEMTREC 1-800-424-9300, 24-hours

Section 2: Hazard Identification

2.1 Classification:

Not classified under any GHS hazard class.

2.2 Label elements:

Not applicable (not classified)

2.3 Other hazards:

Prolonged exposure may cause slight eye and skin irritation.

While this product is not considered hazardous, this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Section 3: Composition/Information on Ingredients

3.1 Substances:

<u>Chemical Name</u>	<u>CAS No.</u>	<u>EC #</u>	<u>Wt.%</u>	<u>GHS Classifications</u>
2,2',2"-nitrilotriethanol Common name: TEA	102-71-6	203-049-8	99.6 - 100	Not classified

Section 4: First-Aid Measures

4.1 First-aid measures:

Inhalation: Remove source of exposure or move to fresh air. Get medical advice/attention if you feel unwell or are concerned.

Skin contact: Rinse with lukewarm, gently flowing water for 5 minutes. If skin irritation occurs get medical advice.

Eye contact: Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical attention.

Ingestion: Call a Poison Centre or doctor if you feel unwell or are concerned.

4.2 Most important symptoms and effects, acute and delayed:

Inhalation: Symptoms of exposure may include coughing, wheezing, sore throat, difficult breathing.

Skin Contact: Symptoms of irritation include local redness, dryness and discomfort.

Eye Contact: Liquid, mists and/or vapor may cause eye irritation. Symptoms of irritation include redness, tears.

Ingestion: Swallowing can cause irritation of the digestive tract, abdominal and chest pain, nausea, vomiting and diarrhea.

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4.3 Immediate medical attention and special treatment:

Special instructions: Not applicable

Medical conditions aggravated by exposure: None known.

Section 5: Fire-fighting Measures

5.1 Suitable extinguishing media:

Water fog or fine spray, alcohol-resistant foam or dry chemical. Use water spray to cool fire-exposed containers.

Unsuitable extinguishing media: Violent steam generation or eruption may occur upon application of direct water stream to hot product. High pressure water streams may scatter hot liquid.

5.2 Specific hazards arising from the chemical:

Product can burn if heated (Flash point of pure TEA = 179°C (354°F)).

Combustible if involved in a fire.

Hazardous decomposition may occur above 200°C. During a fire, smoke may contain vaporized TEA and other unidentified toxic and/or irritating compounds. Combustion products may include toxic nitrogen oxide, hydrogen cyanide, formaldehyde carbon monoxide, carbon dioxide and ammonia gases. Heat from a fire can cause a rapid build-up of pressure inside containers, which may cause explosive rupture.

5.3 Special protective equipment and precautions for fire-fighters:

Evacuate the area and fight fire from a safe distance or a protected location. Thermal decomposition products such as nitrogen oxides and hydrogen cyanide are hazardous to health. Do not enter without specialized protective equipment suitable for the situation. Approach the fire from upwind to avoid hazardous vapors. Burning liquids may be extinguished by dilution with water. Water spray may be used to flush spills away from ignition sources.

Avoid all contact with this material during fire-fighting operations. Wear chemical resistant clothing (chemical splash suit) and positive-pressure self-contained breathing apparatus.

Contain water run-off if possible.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Isolate the area; keep all unprotected people away from the spill area. Extinguish or remove all ignition sources.

Wear protective gloves, protective clothing and face protection (See Section 8). Ensure clean-up is conducted by trained personnel only. Do not touch or walk through the spilled material. Spilled material may pose a slipping hazard.

6.2 Environmental precautions:

Prevent material from contaminating soil and from entering sewers or waterways.

6.3 Methods and material for containment and cleaning up:

Stop the spill if it is safe to do so. Contain the spill with earth, sand or other suitable non-combustible absorbent. Keep materials which can burn away from spilled product. Do not absorb with sawdust, woodchips or other cellulose materials. Clean up spills immediately.

Large spills: Pump spilled liquid into suitable containers.

Small spills: Take up the liquid spill using an inert absorbent material. Scoop up spilled product and any contaminated absorbents into appropriate, labeled containers. Contaminated absorbent may pose the same hazards as the spilled product. Flush the area with water and collect wash-water for proper disposal.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Wear personal protective gloves, clothing and other equipment required for the workplace.

Avoid breathing fume/gas/mist/vapors/spray.

Avoid generating airborne fumes/vapors/mist from this product.

Handle this product with adequate ventilation.

Wash hands and exposed skin thoroughly, immediately after exposure to product and at the end of the work-shift.

Keep away from flames and hot surfaces. – No smoking.

Prevent handling with incompatible materials such as strong acids and oxidizing agents.

Prevent release of this material to the environment; prevent spills and keep away from drains.

Never perform any welding, cutting, soldering, drilling or other hot work on an empty vessel, container or piping until all liquid and vapors have been cleared.

Inspect containers for leaks before handling. Prevent damage to containers. Keep containers closed when not in use.

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7.2 Conditions for safe storage:

Keep containers tightly closed when not in use. Store in a cool, dry and well-ventilated place.
Store away from sunlight, heat and ignition sources.
Store away from strong oxidants, strong acids and other incompatible materials (see Section 10).
Do not store in containers made of aluminum, copper, brass or other copper alloys.
Store separated from food and feedstuffs.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters

Occupational Exposure Limits: Consult the local jurisdiction (e.g. province/territory) for their occupational exposure limits.
Legislation for Canadian OH&S is available at : <http://www.ccohs.ca/oshanswers/information/govt.html>

Ingredient	ACGIH® TLV®	U.S. OSHA PEL	Other exposure limits
Triethanolamine	5 mg/m ³	Not available	Ontario (Canada) TWA: 0.5 ppm (3.1 mg/m ³)

8.2 Engineering controls

Exposure control measures: Facilities utilizing or storing this material should be equipped with general or local exhaust ventilation, eyewash facilities and a safety shower. Ventilation system should be made of corrosion-resistant material. Maintain air concentrations below occupational exposure standards using engineering controls. Personal Protective Equipment (PPE) should be used as back-up protection to engineering controls.

8.3 Individual protection measures (PPE)

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

Skin protection: Wear impervious, chemical protective gloves. Wear clean, body-covering, protective coveralls to prevent skin exposure. If spill or splashing is possible, wear impervious apron and chemical protective boots. Recommended materials for protective clothing include butyl rubber, neoprene rubber. Resistance of specific materials can vary from product to product; evaluate resistance under conditions of use and maintain clothing carefully.

Respiratory protection: If concentrations in air exceed the occupational exposure limits, then wear respiratory protection. Respiratory protection should not be necessary unless the product is heated to release vapors or a mist is created. If airborne vapor or mist exposure is likely wear a chemical cartridge respirator with cartridges to protect against ethanolamine, or a powered air-purifying respirator with cartridges to protect against ethanolamine, or a full-face self-contained breathing apparatus.

If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Consult with respirator manufacturer to determine respirator selection, use and limitations. For spills or uncontrolled releases, wear a supplied-air respirator.

A respiratory protection program that meets the regulatory standard, such as Canadian Standards Association (CSA) Standard Z94.4 or OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements, must be followed whenever workplace conditions warrant a respirator's use.

Section 9: Physical and Chemical Properties

9.1 Basic physical and chemical properties:

Appearance:	Liquid. Viscous, colorless to light yellow.
Odor:	Slight ammonia-like odor.
Odor threshold:	Not available
pH:	11 (25% aqueous solution)
Melting point/freezing point:	20.5°C (68.9°F)
Initial boiling point and boiling range:	120°C (250°F) @ 1013.25 hPa
Flash point:	179°C (354°F)
Evaporation Rate:	< 0.01 (n-Butyl Acetate = 1)
Flammability (solid, gas):	Non- flammable
Auto-ignition temperature:	324°C – 350°C (615°F – 662°F)
Upper/lower flammability or explosive limits:	Lower: Not available Upper: Not available
Explosive properties:	Not available
Oxidising properties:	Not applicable
Vapor pressure:	<0.01 mmHg @ 20 °C
Vapor density:	5.14 (air=1)
Relative density:	1.125 @ 20°C (water=1)

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9.1 Basic physical and chemical properties:	
Solubility (ies):	Water; complete Ethanol; complete Acetone; complete
Partition coefficient (n-octanol/water):	-2.3 log K _{ow} (OECD TG 107 @ 25°C)
Decomposition temperature:	200°C (392°F)
Viscosity:	0.934 Pa.s @ 20°C (dynamic)
Relative density saturated vapor/air mixture:	1.8 mg/m ³
Absolute density:	1124 kg/m ³

Section 10: Stability and Reactivity

- 10.1 Reactivity:**
Not reactive under normal conditions of use.
- 10.2 Chemical stability:**
Normally stable.
- 10.3 Possibility of hazardous reactions:**
Heating above 60°C in aluminum can result in corrosion and generation of flammable hydrogen gas.
Reacts with cellulose nitrate causing fire and explosion hazard.
Reacts violently with strong acids and strong oxidants (e.g. nitric acid, hydrogen peroxide), increasing risk of fire or explosion.
Contact with nitrosating agents, under acidic conditions such as nitrous acid, nitrite or nitrogen oxides, can form nitrosamines some of which are potent carcinogens.
Alkanolamine substances are decomposed by light and slowly oxidized by air, turning yellow and then brown. This reaction is accelerated by heat and the presence of metals.
Alkanolamine substances are oxidized by air slowly with evolution of heat. This reaction may lead to spontaneous combustion if the substance is on an adsorbent or on a high surface area material (e.g. absorbent material or thermal insulation).
- 10.4 Conditions to avoid:**
Avoid high temperatures and contact with sources of ignition. Avoid sunlight, air and moisture.
- 10.5 Incompatible materials:**
Avoid contact with strong acids, strong oxidizing agents, halogenated hydrocarbons, nitrating agents, alkali metals, metal hydrides and aluminum.
Product may be corrosive to aluminum alloys at elevated temperatures, many 400 series stainless steel alloys, copper, zinc, and aluminum bronze.
In combination with water, the product may be corrosive to copper and copper alloys (e.g. brass), some aluminum alloys, zinc, zinc alloys, and galvanized surfaces.
Triethanolamine attacks some polymers including polyvinylchloride, polyurethane, polyamide imide, high-density polyethylene and polyacetal at elevated temperatures.
- 10.6 Hazardous decomposition products:**
Decomposition products may include nitrogen oxides, ammonia, irritating aldehydes and ketones. Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.
Oxidation in air may form transient, organic peroxides or thermally unstable N-oxides such as hydroxylamines and carbamates form as well as nitrosamines, which are suspected cancer causing chemicals. Oxidation of Triethanolamine and decomposition is accelerated by light, heat, and/or presence of metals or metal oxides.

Section 11: Toxicological Information

- 11.1 Likely routes of exposure:**
Ingestion, Eye contact, Skin contact, Inhalation.
- 11.2 Acute toxicity data:**

Ingredient	LD₅₀ Oral	LD₅₀ Dermal	LC₅₀ Inhalation (4 hrs.)
Triethanolamine (TEA)	4190 mg/kg (rat)	>2000 mg/kg (rabbit)	Not available

Skin corrosion / irritation:
Results from tests performed according to OECD Guideline 404 (Acute Dermal Irritation / Corrosion) demonstrated that TEA was not irritating to skin.

Serious eye damage / irritation:
Results from tests performed according to OECD Guideline 405 (Acute Eye Irritation / Corrosion) demonstrated that TEA was not irritating to eyes.

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11.2 Acute toxicity data:

STOT (Specific Target Organ Toxicity) Single Exposure:
Information not available.

Aspiration hazard:
Not known to cause aspiration toxicity.

11.3 Chronic toxicity:

STOT (Specific Target Organ Toxicity) Repeated Exposure:
Information for TEA: In tests with animals, long-term ingestion and skin contact exposures to high doses caused damage to the liver and kidney. A NOAEL, oral exposure, was reported as 1 000 mg/kg/day in rats.

Respiratory and / or skin sensitization:
Contact skin allergy has been reported in people occupationally exposed to TEA in the textile industry and in metalworking fluids and to people non-occupationally exposed to TEA in cosmetics and medicines. Negative results have been obtained in animal skin sensitization tests performed according to OECD Guideline 406 (Skin Sensitization).
Not known to be a respiratory sensitizer.

Germ cell mutagenicity:
Not known to be a mutagen based on evidence from animal studies, cultured mammalian cells and bacterial studies.

Reproductive effects:
Not known to cause adverse reproductive effects. For TEA a NOAEL, oral exposure, was reported as 1 000 mg/kg/day in rats.

Developmental effects:
Not known to harm the unborn child. For TEA a NOAEL, oral exposure, was reported as 300 mg/kg/day in rats.

Effects on or via lactation:
None known

Carcinogenicity:
IARC (International Agency for Research on Cancer) lists TEA in Group 3 – The agent is not classifiable as to carcinogenicity in humans.

Interactions with other chemicals:
Not available

Section 12:	Ecological Information
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12.1 Ecotoxicity:

Information for TEA:
Not harmful to fish, crustacea or algae.

Freshwater fish:
96 Hr LC₅₀ *Pimephales promelas*: 10600-13000 mg/L [flow-through]
96 Hr LC₅₀ *Pimephales promelas*: >1000 mg/L [static]
96 Hr LC₅₀ *Lepomis macrochirus*: 450-1000 mg/L [static]

Crustacea:
24 Hr EC₅₀ *Daphnia magna*: 1386 mg/L

Algae:
72 Hr EC₅₀ *Desmodesmus subspicatus*: 216 mg/L
96 Hr EC₅₀ *Desmodesmus subspicatus*: 169 mg/L

12.2 Persistence and degradability:

Material is readily biodegradable in water according to OECD Test 301B for ready biodegradability.
Theoretical oxygen demand (ThOD) is calculated to be 2.04 p/p.
Inhibitory concentration (IC50) in OECD "Activated Sludge, Respiratory Inhibition Test" (Guideline #209) is > 1000 mg/L.

12.3 Bioaccumulative potential:

Low potential for bioaccumulation.
Bioconcentration Factor (BCF) = <3.9 method: OECD 305C
Log P_{ow} = -2.3 @ 25°C

12.4 Mobility in soil:

Soluble in water; low potential for absorption in soil.
Henry's Law Constant (H) is estimated to be 3.38E-19 atm m³/mole at 25°C.
Log soil organic carbon partition coefficient (log Koc) = 1.24 calculated.

SAFETY DATA SHEET**12.5 Other information:**

Not dangerous for the ozone layer (According to EU Council Regulation No 1005/2009)
For detailed Ecological data, write to the address in Section 1 or email INEOS Oxide Technical Services at oxide.us.techservices@ineos.com.

Section 13: Disposal Considerations**13.1 Disposal methods**

Do NOT discard into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.

Dispose of in accordance with local/regional/national/ international regulations.

For unused, uncontaminated product, the preferred options include sending to a licensed, permitted recycler, reclaimer incinerator or other thermal destruction device.

USA: Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Other information:

Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. INEOS Oxide HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 2.

As a service to its customers, INEOS Oxide can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Email INEOS Oxide Technical Services at oxide.us.techservices@ineos.com.

Section 14: Transport Information**14.1 UN Number**

Not regulated

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not available

14.6 Special precautions for user

Not available

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

Triethanolamine: Category Z.

14.8 U.S. Hazardous Materials Regulation (DOT 49CFR):

For regulatory information regarding transportation, if required, consult product shipping papers, or your INEOS Oxide representative.

Section 15: Regulatory Information**15.1 Safety, health and environmental regulations:****USA:**

OSHA: This material is not considered a hazardous chemical by the OSHA Hazard Communication Standard 29 CFR 1910.1200 (2012).

Toxic Substances Control Act (TSCA) Section 8(b): All ingredients are listed on the TSCA Inventory.

Additional USA regulatory lists: Clean Air Act – Triethanolamine.
Diethanolamine (<0.095%).

SARA Title III - Section 313: Diethanolamine (<0.095%)

SAFETY DATA SHEET**15.1 Safety, health and environmental regulations:**

California Safe Drinking Water and Toxic Enforcement Act, Proposition 65:
Diethanolamine (<0.095%) is on the list of chemicals known to the State to cause cancer.

State Right To Know: Triethanolamine- Massachusetts. New Jersey. Pennsylvania.
Diethanolamine (<0.095%) - Massachusetts. New Jersey. Pennsylvania.

Canada:

WHMIS classification: This product is not classified in any of the hazard classes of the Hazardous Products Regulations.

DSL status: All ingredients are listed on the DSL (Domestic Substances List).

NPRI Substances: Not listed.

European Union:

European Inventories: Substances listed in EINECS.

Other international inventories

Australia: Substances listed on the Inventory of Chemical Substances (AICS).

China: Substances listed on the Chinese inventory (IECSC).

Japan: Substances listed on ENCS.

Korea: Substances listed on the Inventory of Existing and Evaluated Chemical Substances.

Mexico: Substances listed on the inventory (INSQ).

New Zealand: Substances listed on the inventory (NZIoC).

Philippines: Substances listed on the inventory (PICCS).

Taiwan: Substances listed on the inventory (TCSI).

Turkey: Substances listed on the inventory.

Section 16: Other Information**Revision date:**

April 21, 2020

Revision summary:

Replaces previous version July 2019 with the following revisions:
Section 1.2: Recommended use and restrictions on use
Section 9: new data for Physical and Chemical properties

References and sources for data:

CCOHS – ChemInfo
www.ccohs.ca/oshanswers/information/govt.html
ECHA - Information on Chemicals, Registered Substances
HSDB – Hazardous Substances Data Bank
IARC Monograph Volume 101
RTECS[®] - Registry of Toxic Effects of Chemical Substances
National Toxicology Program (NTP) – Report on Carcinogens

Additional information:

The information provided on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.