

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 14-Feb-2024

Revision date 14-Jun-2024

Revision Number 4.04

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Code(s) 10476

Safety data sheet number 10476

Product Name TRIETHANOLAMINE STANDARD DILUTIONS

Synonyms TRIETHANOLAMINE STANDARD 90%, TRIETHANOLAMINE STANDARD 85% DILUTION, TRIETHANOLAMINE 42.5% SOL, TRIETHANOLAMINE 85 80%, TRIETHANOLAMINE STANDARD 80%, TRIETHANOLAMINE STD (TEA85) 90%, TEA 90 LFG 50%

Pure substance/mixture Mixture

Contains DIETHANOLAMINE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Chemical intermediate

1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address SDS.EMEA@univarsolutions.com

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)

Reproductive toxicity	Category 2 - (H361)
Specific target organ toxicity — repeated exposure	Category 2 - (H373)

2.2. Label elements

Contains DIETHANOLAMINE

**Signal word**

Danger

Hazard statements

H315 - Causes skin irritation

H318 - Causes serious eye damage

H361 - Suspected of damaging fertility or the unborn child

H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Unknown aquatic toxicity**Additional information**

This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
TRIETHANOLAMINE E 102-71-6	50 - 60%	203-049-8	-	-	-	-	-
DIETHANOLAMINE 111-42-2	10 - 20%	203-868-0 (603-071-00)	-	Acute Tox. 4 (H302) Skin Irrit. 2 (H315)	-	-	-

		-1)		Eye Dam. 1 (H318) STOT RE 2 (H373) Repr. 2 (H361fd)			
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Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Eye contact	Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	Burning sensation.
Eyes	Causes serious eye damage.
Dermal	Rashes. Irritating. Prolonged contact may cause redness and irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products	Carbon oxides. Nitrogen oxides (NO _x).
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5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.
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6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Ensure adequate ventilation. Take off contaminated clothing and wash it before reuse.
General hygiene considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. Keep container tightly closed in a dry and well-ventilated place. Avoid contact with: Acids. Acid anhydrides. Oxidising agent.
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7.3. Specific end use(s)

Specific use(s)	See section 1 for more information.
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Risk Management Methods (RMM)	The information required is contained in this Safety Data Sheet.
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SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure Limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
TRIETHANOLAMINE 102-71-6		6.3 mg/kg [4] [6]	5 mg/m ³ [5] [6]
DIETHANOLAMINE 111-42-2		0.13 mg/kg bw/day [4] [6]	0.75 mg/m ³ [4] [6] 0.5 mg/m ³ [5] [6]

[4] Systemic health effects.
[5] Local health effects.
[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
TRIETHANOLAMINE 102-71-6	13 mg/kg [4] [6]	3.1 mg/kg [4] [6]	1.25 mg/m ³ [5] [6]
DIETHANOLAMINE 111-42-2	0.06 mg/kg bw/day [4] [6]	0.07 mg/kg/day [4] [6]	0.125 mg/m ³ [4] [6] 0.125 mg/m ³ [5] [6]

[4] Systemic health effects.
[5] Local health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
TRIETHANOLAMINE 102-71-6	0.32 mg/l	5.12 mg/L	0.032 mg/l		
DIETHANOLAMINE 111-42-2	0.021 mg/L	0.095 mg/L	0.002 mg/L		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
TRIETHANOLAMINE 102-71-6	1.7 mg/kg	0.17 mg/kg	10 mg/L	0.151 mg/kg	
DIETHANOLAMINE 111-42-2	0.092 mg/kg sediment dw	0.0092 mg/kg sediment dw	100 mg/L	1.63 mg/kg soil dw	1.04 mg/kg food

8.2. Exposure controls

Engineering controls No information available.

Personal protective equipment

Eye/face protection Tight sealing safety goggles. Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection Wear suitable gloves. Impervious gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state Liquid
Appearance Liquid
Colour Colourless to pale yellow
Odour Ammonia.
Odour threshold No information available

Property	Values	Remarks • Method
Melting point / freezing point	13 °C	
Initial boiling point and boiling range	> 270 °C	
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point	> 180 °C	
Autoignition temperature		No information available.
Decomposition temperature		No information available.
pH		No information available.
pH (as aqueous solution)	10.5	solution (1.5 %).
Kinematic viscosity		No information available.
Dynamic viscosity	550 mPa s	@ 25 °C.
Water solubility	Miscible with water	
Solubility(ies)		No information available.
Partition coefficient		No information available.
Vapour pressure	<0.01 mbar	
Relative density	1.09 - 1.13	25 °C.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		No information available.

Particle characteristics	No information available.
Particle Size	No information available
Particle Size Distribution	No information available
Explosive properties	No information available
Oxidising properties	No information available

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No known effects under normal use conditions.
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10.2. Chemical stability

Stability	Stable under normal conditions.
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Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	None under normal processing.
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10.4. Conditions to avoid

Conditions to avoid	Excessive heat.
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10.5. Incompatible materials

Incompatible materials	Strong acids. Strong bases. Strong oxidising agents.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Carbon oxides. Nitrogen oxides (NOx).
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	May cause irritation.
Eye contact	Causes serious eye damage.
Skin contact	Causes skin irritation.
Ingestion	Gastrointestinal discomfort.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Redness. Burning. May cause blindness. May cause redness and tearing of the eyes.
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Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 3,222.10 mg/kg

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
TRIETHANOLAMINE	= 4190 mg/kg (Rat)	> 20000 mg/kg (Rabbit)	-
DIETHANOLAMINE	= 1600 mg/kg (Rat)	= 12970 mg/kg (Rabbit)	3.35 mg/l (Rat) 4h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes skin irritation.

DIETHANOLAMINE (111-42-2)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Causes skin irritation

Serious eye damage/eye irritation Causes serious eye damage.

DIETHANOLAMINE (111-42-2)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Causes serious eye damage

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity Suspected of damaging fertility. Suspected of damaging the unborn child.

STOT - single exposure No information available.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Component Information

DIETHANOLAMINE (111-42-2)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Causes damage to organs through prolonged or repeated exposure if

					swallowed
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Aspiration hazard No information available.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

Unknown aquatic toxicity

DIETHANOLAMINE (111-42-2)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
	Pimephales promelas	LC50	1460 mg/L	96 hours	
	Daphnia magna	EC50	55 mg/L	48 hours	
	Daphnia magna	NOEC	0.78 mg/L	504 hours	
	Daphnia magna	LOEC	1.56 mg/L	504 hours	
	Pseudokirchneriella subcapitata	EC50	9.5 mg/L	72 hours	
	activated sludge	EC20	> 1000 mg/L	30 minutes	
Chronic aquatic toxicity	Daphnia magna	EC10	1.05 mg/L	21 days	

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
TRIETHANOLAMINE	EC50: =216mg/L (72h, Desmodesmus subspicatus) EC50: =169mg/L (96h, Desmodesmus subspicatus)	LC50: 10600 - 13000mg/L (96h, Pimephales promelas) LC50: >1000mg/L (96h, Pimephales promelas) LC50: 450 - 1000mg/L (96h, Lepomis macrochirus)	-	-

12.2. Persistence and degradability

Persistence and degradability Biodegradable.

DIETHANOLAMINE (111-42-2)

Method	Exposure time	Value	Results
OECD Test No. 301F: Ready Biodegradability: Manometric Respirometry Test (TG 301 F)	28 days	Biodegradation 93 %	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation The product does not contain any substances expected to be bioaccumulating.

Component Information

Chemical name	Partition coefficient
TRIETHANOLAMINE	-2.53***
DIETHANOLAMINE	-2.18

12.4. Mobility in soil

Mobility in soil Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
TRIETHANOLAMINE	The substance is not PBT / vPvB
DIETHANOLAMINE	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated

14.2

14.3 Transport hazard class(es) Not regulated

14.4 Packing group Not regulated

14.5 Environmental hazards Not applicable

14.6 Special precautions for user

Special Provisions None

IMDG

14.1 UN number or ID number Not regulated

14.3 Transport hazard class(es) Not regulated

14.4 Packing group Not regulated

14.5 Environmental hazards Not applicable

14.6 Special precautions for user

Special Provisions None

14.7 Maritime transport in bulk according to IMO instruments No information available

RID

14.1 UN number or ID number Not regulated

14.2 UN proper shipping name Not regulated

14.3 Transport hazard class(es) Not regulated

14.4 Packing group Not regulated

14.5 Environmental hazards Not applicable

14.6 Special precautions for user

Special Provisions None

ADR

14.1 UN number or ID number Not regulated

14.2 UN proper shipping name Not regulated

14.3 Transport hazard class(es) Not regulated

14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Authorisations and/or restrictions on use:

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AIIC	- Australian Inventory of Industrial Chemicals
NZIoC	- New Zealand Inventory of Chemicals

15.2. Chemical safety assessment**Chemical Safety Report**

No information available

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H302 - Harmful if swallowed

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H373 - May cause damage to organs through prolonged or repeated exposure

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA TWA (time-weighted average)

Ceiling Maximum limit value

+ Sensitisers

STEL

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STEL (Short Term Exposure Limit)

Skin designation

Revision Note ***Indicates updated data since last publication

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity - gas

Acute inhalation toxicity - vapour

Acute inhalation toxicity - dust/mist

Skin corrosion/irritation

Serious eye damage/eye irritation

Respiratory sensitisation

Skin sensitisation

Mutagenicity

Carcinogenicity

STOT - single exposure

STOT - repeated exposure

Acute aquatic toxicity

Chronic aquatic toxicity

Aspiration hazard

Ozone

Method Used

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

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Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)

European Chemicals Agency (ECHA) (ECHA_API)

Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By Jitendra Panchal

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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

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.

End of Safety Data Sheet