Safety Data Sheet

29 CFR 1910.1200 App D

Triethanolamine TEA 99%

Version number: 1.0

SECTION 1: Identification

1.1 Product identifier

Identification of the substance triethanolamine

Trade name **Triethanolamine TEA 99%**

CAS number 102-71-6

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

Relevant identified uses Intermediate

1.3 Details of the supplier of the safety data sheet

Valudor Products, LLC
179 Calle Magdalena Suite 100
Encinitas, California CA 92024
United States

Telephone: +1 (760) 635 8500
e-mail: info@valudor.com
Website: www.valudor.com

1.4 Emergency telephone number

Emergency information 800-535-5053 (Infotrac)

As above or nearest toxicological information centre.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

This substance does not meet the criteria for classification.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Not required.

2.3 Other hazards

Special danger of slipping by leaking/spilling product.
Vapors may form explosive mixtures with air.

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	triethanolamine
Identifiers	
CAS No	102-71-6
Purity	90 - 100 %

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Self-protection of the first aider.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.

Following skin contact

After contact with skin, wash immediately with plenty of water.
If skin irritation occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.

Following eye contact

Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Following ingestion

Rinse mouth. Do not induce vomiting.
Get medical advice/attention.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

This information is not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

water spray, alcohol resistant foam, fire extinguishing powder, carbon dioxide (CO2), coordinate firefighting measures to the fire surroundings

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.
Vapors may form explosive mixtures with air.
Danger of bursting container.

Hazardous combustion products

nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Keep containers cool with water spray.
In case of fire and/or explosion do not breathe fumes.
Coordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

chemical protection suit, self-contained breathing apparatus (SCBA)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Ventilate affected area.
Eliminate all ignition sources if safe to do so.
Do not breathe vapor/spray.
Do not get in eyes, on skin, or on clothing.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to clean up a spill

Collect spillage.
Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.).

Appropriate containment techniques

Neutralization techniques.
Use of adsorbent materials.
Vacuuming techniques.

Equipment required for containment/clean-up

absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), material for neutralising like diluted acetic acid

Other information relating to spills and releases

Place in appropriate containers for disposal.
Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Keep away from sources of ignition - No smoking.

Specific notes/details

Vapors may form explosive mixtures with air.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Remove contaminated clothing and protective equipment before entering eating areas.
Do not breathe mist/vapors/spray.
Do not get in eyes, on skin, or on clothing.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.

7.2 Conditions for safe storage, including any incompatibilities

Flammability hazards

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

Incompatible substances or mixtures

Incompatible materials: see section 10.

Do not mix with

acids, oxidizers, reducing agents, nitrites and their mixtures

Protect against external exposure, such as

heat, frost, humidity

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Keep container tightly closed and in a well-ventilated place.
Store in a dry place.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

The following constituents are the only constituents of the product which have a PEL, a TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
US	triethanolamine	102-71-6	PEL (CA)	-	5	-	-	-	Cal/OSHA PEL
US	triethanolamine	102-71-6	TLV®	-	5	-	-	-	ACGIH® 2023

Notation

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

Notation

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

Protective gloves		
Material	**Material thickness**	**Breakthrough times of the glove material**
IIR: isobutene-isoprene (butyl) rubber	≥ 0,5 mm	>480 minutes (permeation: level 6)
NBR: acrylonitrile-butadiene rubber	≥ 0,35 mm	>480 minutes (permeation: level 6)
PVC: polyvinyl chloride	≥ 0,5 mm	>480 minutes (permeation: level 6)

Wear suitable gloves.
Chemical protection gloves are suitable, which are tested according to EN 374.
Check leak-tightness/impermeability prior to use.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Body protection

Protective clothing against liquid chemicals.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Type : A (against organic gases and vapors with a boiling point of > 65 °C , color code: Brown).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid (viscous)
Color	light yellow
Odor	Ammonia-like
Odor threshold	not determined

Other safety parameters

pH (value)	11 (in aqueous solution: 20 $^{g}/_{l}$, 20 °C)
Melting point/freezing point	20.5 °C
Boiling point or initial boiling point and boiling range	336.1 °C at 1,013 hPa decomposition occurs prior to or during boiling
Flash point	193 °C (DIN EN ISO 2719)
Evaporation rate	not determined
Flammability (solid, gas)	not relevant (fluid)
Explosive limits	
Lower explosion limit (LEL)	3.6 vol%
Upper explosion limit (UEL)	7.2 vol%
Vapor pressure	<0.03 Pa at 21 °C
Density	1.125 $^{g}/_{cm^3}$ at 20 °C
Relative density / Relative vapour density	5.2 (air = 1) 1.125 at 20 °C (water = 1)
Solubility(ies)	
Water solubility	>1,000 $^{g}/_{l}$ at 20 °C miscible in any proportion
Partition coefficient	
n-octanol/water (log KOW)	not determined

Soil organic carbon/water (log KOC)	1.23 (25 °C) (QSAR) (ECHA)
Auto-ignition temperature	324 °C
Decomposition temperature	> 120 °C (Dewar) > 250 °C (Isoperibol Lütolf) .
Viscosity	
Kinematic viscosity	527 $^{mm^2}/_s$ at 25 °C
Dynamic viscosity	934 mPa s at 20 °C
Explosive properties	none
Oxidizing properties	none
Information for relevant hazard classes according to GHS	hazard classes acc. to GHS (physical hazards): not relevant

9.2 Other information

Temperature class (USA, acc. to NEC 500)	T2 (maximum permissible surface temperature on the equipment: 300°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

Hygroscopic substance.

10.3 Possibility of hazardous reactions

In case of insufficient ventilation and/or in use, may form flammable/explosive vapor-air mixture.
Possibility of formation of nitrosamines with nitrites or other nitrosating agents.
Corrosive effects in contact with water
Corrosive to aluminum if heated.

10.4 Conditions to avoid

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

10.5 Incompatible materials

acids, oxidizers, reducing agents, nitrites and their mixtures

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgment (weight of evidence determination).

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

This substance does not meet the criteria for classification.

Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	6,400 $^{mg}/_{kg}$	rat	OECD Guideline 401	ECHA
dermal	LD50	>2,000 $^{mg}/_{kg}$	rabbit	OECD Guideline 402	ECHA

Skin corrosion/irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Serious eye damage/eye irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory or skin sensitization
Skin sensitization

Shall not be classified as a skin sensitizer.

Respiratory sensitization

Skin sensitization
Shall not be classified as a skin sensitizer.
(ECHA, OECD Guideline 406)
Respiratory sensitization
Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.
(ECHA, OECD Guideline 471, OECD Guideline 473, OECD Guideline 476, OECD Guideline 474)

Carcinogenicity

Shall not be classified as carcinogenic.
(ECHA, OECD Guideline 451)

IARC Monographs

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			
Name of substance	**CAS No**	**Classification**	**Number**
triethanolamine	102-71-6	3	-

Legend

3 Not classifiable as to carcinogenicity in humans

National Toxicology Program (United States)

not listed

OSHA Carcinogens

Not listed.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.
(ECHA, OECD Guideline 414, OECD Guideline 421, OECD Guideline 416)

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Exposure route	Endpoint	Value	Exposure time	Species	Method	Source
oral	NOAEL	1,000 $^{mg}/_{kg\ bw}$/day	90 d	rat	OECD Guideline 408	ECHA
dermal	NOAEL	125 – 500 $^{mg}/_{kg\ bw}$/day	90 d	rat	OECD Guideline 411	ECHA
dermal	NOAEL	≤250 $^{mg}/_{kg\ bw}$/day	90 d	mouse	OECD Guideline 411	ECHA
inhalation: dust/mist	NOAEC	≤0.5 $^{mg}/_{l}$	28 d	rat	OECD Guideline 412	ECHA

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method	Source
LC50	96 h	11,800 $^{mg}/_{l}$	fathead minnow (Pimephales promelas)	APHA method	ECHA
EC50	48 h	609.9 $^{mg}/_{l}$	Ceriodaphnia dubia (water flea)	New South Wales Gouvernment Environment Protection Authority: ASTM Designation E1192	ECHA
ErC50	72 h	512 $^{mg}/_{l}$	algae (Desmodesmus subspicatus)	DIN 38412 T.9	ECHA

Aquatic toxicity (chronic)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method	Source
NOEC	21 d	16 $^{mg}/_{l}$	daphnia magna	-	ECHA
growth rate (ErCx) 10%	72 h	7.9 $^{mg}/_{l}$	algae (Desmodesmus subspicatus)	DIN 38412 T.9	ECHA

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Process of degradability			
Process	**Degradation rate**	**Time**	**Source**
carbon dioxide generation	~100 %	5 d	ECHA

Persistence

No data available.

12.3 Bioaccumulative potential

BCF	<3.9 (OECD Guideline 305)

12.4 Mobility in soil

The Organic Carbon normalised adsorption coefficient	1.23 (25 °C) (QSAR)

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Other adverse effects

Data are not available.

Remarks

None.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	**UN number**	not assigned
14.2	**UN proper shipping name**	-
14.3	**Transport hazard class(es)**	-
14.4	**Packing group**	-
14.5	**Environmental hazards**	-
14.6	**Special precautions for user**	-
14.7	**Transport in bulk according to IMO instruments**	-

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information

Not subject to transport regulations.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) Substance is listed (ACTIVE)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

Not listed

Specific Toxic Chemical Listings (EPCRA Section 313)

Not listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Not listed

Clean Air Act

Not listed

Right to Know Hazardous Substance List

Toxic or Hazardous Substance List (MA-TURA)

Not listed

Hazardous Substances List (MN-ERTK)

Name of substance	Name acc. to inventory	CAS No	References	Remarks
triethanolamine	Triethanolamine	102-71-6	A	-

Legend

A American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH

Hazardous Substance List (NJ-RTK)

Name of substance	Name acc. to inventory	CAS No	Remarks	Classifications	Listed in	Substance number	DOT number
triethanolamine	triethanolamine	102-71-6	-		27	4094	-

Legend

2 "2009 TLVs® and BEIs®, Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienists (ACGIH), 2009.

7 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, "All Supplements, All Volumes, Groups 1, 2A, 2B, and 3, International Agency for Research on Cancer (IARC), World Health Organization, 2008.

Hazardous Substance List (Chapter 323) (PA-RTK)

Name acc. to inventory	CAS No	Classification
ETHANOL, 2,2',2"-NITRILOTRIS-	102-71-6	-

Hazardous Substance List (RI-RTK)

Name of substance	Name acc. to inventory	CAS No	References
triethanolamine	Triethanolamine	102-71-6	F

Legend

F Flammability (NFPA®)

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

Not listed

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

Not listed

SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2024-01-04

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
49 CFR US DOT	49 CFR U.S. Department of Transportation
ACGIH® 2023	From ACGIH®, 2023 TLVs® and BEIs® Book. Copyright 2023. Reprinted with permission. Information on the proper use of the TLVs® and BEIs®: http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/tlv-bei-position-statement
BCF	Bioconcentration factor
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NFPA®	National Fire Protection Association (United States)
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
STEL	Short-term exposure limit
TLV®	Threshold Limit Values
TWA	Time-weighted average

Abbr.	Descriptions of used abbreviations
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

Responsible for the safety data sheet

Chemical Regulatory Compliance Company
Jasper, GA
USA

Telephone: +1 (630) 410-1660
e-Mail: GHS@crc-us.com
Website: www.crc-us.com

Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.