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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

SECTION 1 Product identifiers

Product name : Diethanolamine, GR 99%+

Product Code: D 1637

CAS-No. : 111-42-2

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Reproductive toxicity (Category 2), H361fd

Specific target organ toxicity - repeated exposure, Oral (Category 2), Kidney, Liver, Blood, H373

Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

H373 May cause damage to organs (Kidney, Liver, Blood) through prolonged or repeated exposure if swallowed.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of water.

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

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements none

Reduced Labeling (<= 125 ml)

Pictogram

Signal word Danger

Hazard statement(s)

H318 Causes serious eye damage.

H412 Harmful to aquatic life with long lasting effects.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statement(s)

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing 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.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements none

Supplemental Hazard Statements

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Bis(2-hydroxyethyl)amine

2,2'-Iminodiethanol

Formula : C₄H₁₁NO₂

Molecular weight : 105,14 g/mol

CAS-No. : 111-42-2

EC-No. : 203-868-0

Component	Classification	Concentration
Diethanolamine		
CAS-No. 111-42-2 EC-No. 203-868-0	Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Repr. 2; STOT RE 2; Aquatic Chronic 3; H302, H315, H318, H361fd, H373, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Nitrogen oxides (NO_x)

Combustible.

Vapors are heavier than air and may spread along floors.

Risk of dust explosion.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed.

Air sensitive.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
required

Body Protection
protective clothing

Respiratory protection

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance Form:	viscous liquid
	Color: colorless
b) Odor	ammoniacal
c) Odor Threshold	No data available
d) pH	11,0 - 12 at 105 g/l at 25 °C
e) Melting point/freezing point	Melting point/range: 28 °C
f) Initial boiling point and boiling range	217 °C at 200 hPa
g) Flash point	138 °C - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 10,6 %(V) Lower explosion limit: 1,6 %(V)
k) Vapor pressure	1 hPa at 108 °C - OECD Test Guideline 104
l) Vapor density	3,63 - (Air = 1.0)
m) Relative density	No data available
n) Water solubility	105 g/l at 20 °C - completely soluble
o) Partition coefficient: n-octanol/water	log Pow: -2,46 at 25 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
p) Autoignition temperature	355 °C at 1.013 hPa
q) Decomposition temperature	No data available
r) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 390,9 mPa.s at 30 °C - OECD Test Guideline

s) Explosive properties	114102,7 mPa.s at 50 °C - OECD Test Guideline 114
t) Oxidizing properties	No data available
9.2 Other safety information	No data available
Dissociation constant	8,99 at 25 °C
Relative vapor density	3,63 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Absorbs carbon dioxide (CO₂) from air.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

bronze, Copper, Copper alloys, brass, Zinc, zinc alloys, Strong oxidizing agents

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Toxicity to Animals:

Oral LD50 Rat: 1500 mg/kg; Dermal LD50 Rabbit: 2000mg/kg

Inhalation LC50 Rat: > 50mg/L.

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA, None. by NIOSH.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of inhalation (lung irritant).

Special Remarks on Toxicity

to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 460 mg/l - 96 h

Remarks: (ECHA)

Toxicity to daphnia

and other aquatic

invertebrates

static test EC50 - *Ceriodaphnia dubia* (water flea) - 30,1 mg/l - 48 h

Remarks: (ECHA)

Toxicity to algae static test ErC50 - *Pseudokirchneriella subcapitata* (green algae) - 9,5 mg/l - 96 h

(US-EPA)

Toxicity to bacteria static test EC10 - activated sludge - > 1.000 mg/l - 30 min

(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 93 % - Readily biodegradable.

(OECD Test Guideline 301F)

Biochemical Oxygen

Demand (BOD)

885 mg/g

Remarks: (External MSDS)

Chemical Oxygen

Demand (COD)

1.352 mg/g

Remarks: (External MSDS)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at

levels of 0.1% or higher.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Harmful effect due to pH shift.

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.