

SAFETY DATA SHEET

Version 6.7
Revision Date 06.06.2023
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Diethylenetriamine (DETA)

CAS-No. : 111-40-0

1.2 Other means of identification

2,2'-Diaminodiethylamine
Bis(2-aminoethyl)amine
2,2'-Iminodiethylamine

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

Identified uses : For R&D use only. Not for pharmaceutical, household or other uses.

1.4 Details of the supplier of the safety data sheet

Company : Evergreen Chemicals Co., Ltd
Room 2308,
Wuzhou International Square,
Jiangyin, Jiangsu, China

Telephone : +86-17714007018
Fax : +86-510-86055909
E-mail address : info@evergreenchemicals.cn

1.5 Emergency telephone

Emergency Phone # : +86-17714007018

SECTION 2: Hazards identification

2.1 GHS Classification

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 4), H312
Skin corrosion/irritation (Category 1B), H314
Serious eye damage/eye irritation (Category 1), H318
Skin sensitization (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)

H302 + H312

Harmful if swallowed or in contact with skin.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

H330

Fatal if inhaled.

H335

May cause respiratory irritation.

Precautionary statement(s)

Prevention

P260

Do not breathe mist or vapors.

P264

Wash skin thoroughly after handling.

P280

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

P284

Wear respiratory protection.

Response

P301 + P330 + P331

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P333 + P313

If skin irritation or rash occurs: Get medical advice/ attention.

Storage

P403 + P233

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

2.3 Other hazards

Rapidly absorbed through skin.

SECTION 3: Composition/information on ingredients

Substance / Mixture : Substance

3.1 Substances

Synonyms : 2,2'-Diaminodiethylamine
Bis(2-aminoethyl)amine
2,2'-Iminodiethylamine

Formula : C₄H₁₃N₃
Molecular weight : 103.17 g/mol
CAS-No. : 111-40-0
EC-No. : 203-865-4
Index-No. : 612-058-00-X

Hazardous ingredients

Component	Classification	Concentration
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2,2'-iminodiethylamine		
	Acute Tox. 4; Acute Tox. 2; Acute Tox. 4; Skin Corr./Irrit. 1B; Eye Dam./Irrit. 1; Skin Sens. 1; STOT SE 3; H302, H330, H312, H314, H318, H317, H335	<= 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

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

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

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: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

Carbon dioxide (CO₂) Foam 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

Nature of decomposition products not known.
Combustible.

Vapors are heavier than air and may spread along floors.
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

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2,2'-iminodiethylamine	111-40-0	PEL (long term)	1 ppm 4.2 mg/m ³	Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure Limits of Toxic Substances

8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Full contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 480 min

Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Splash contact

Material: Latex gloves

Minimum layer thickness: 0.6 mm

Break through time: 60 min

Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection

protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

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) Physical state	clear, liquid
b) Color	colorless
c) Odor	Ammonia odor
d) Melting point/freezing point	Melting point/range: -35 °C - lit.
e) Initial boiling point and boiling range	199 - 209 °C - lit.
f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	Upper explosion limit: 6.7 %(V) Lower explosion limit: 2 %(V)
h) Flash point	94 °C - closed cup
i) Autoignition temperature	358 °C at 1,013 hPa
j) Decomposition temperature	No data available
k) pH	No data available
l) Viscosity	Viscosity, kinematic: 7.16 mm ² /s at 20 °C Viscosity, dynamic: No data available
m) Water solubility	at 20 °C miscible in all proportions
n) Partition coefficient: n-octanol/water	No data available
o) Vapor pressure	0.2 hPa at 20 °C
p) Density	0.955 g/cm ³ at 25 °C - lit.
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available

- s) Explosive properties No data available
- t) Oxidizing properties none

9.2 Other safety information

Relative vapor density 3.56 - (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) .

10.3 Possibility of hazardous reactions

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

Violent reactions possible with:

Oxidizing agents

Nitric acid

Strong acids

organic nitro compounds

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Aluminum, Copper, Copper alloys, Zinc, zinc alloys

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 1,080 mg/kg

Remarks: Behavioral:Convulsions or effect on seizure threshold.

(RTECS)

Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - vapor

(Expert judgment)

LD50 Dermal - Rabbit - 1,090 mg/kg

Remarks: (RTECS)

Skin corrosion/irritation

Skin - Rabbit

Result: Causes burns.

Remarks: (IUCLID)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes burns.

Remarks: (IUCLID)

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: positive

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: Ames test

Test system: S. typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: in vivo assay

Species: Mouse

Cell type: Liver cells

Application Route: Oral

Method: OECD Test Guideline 488

Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Respiratory system

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

RTECS: IE1225000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - <i>Poecilia reticulata</i> (guppy) - 1,014 mg/l - 96 h semi-static test LC50 - <i>Poecilia reticulata</i> (guppy) - 430 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia magna</i> (Water flea) - 16 mg/l - 48 h (DIN 38412)
Toxicity to algae	static test ErC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - 1,164 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - Bacteria - 32.7 mg/l - 3 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - <i>Gasterosteus aculeatus</i> - > 10 mg/l - 28 d (OECD Test Guideline 210)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - <i>Daphnia magna</i> (Water flea) - 5.6 mg/l - 21 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 21 d Result: 87 % - Readily biodegradable. (OECD Test Guideline 301D)
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12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information**14.1 UN number**

ADR/RID: 2079 IMDG: 2079 IATA-DGR: 2079

14.2 UN proper shipping name

ADR/RID: DIETHYLENETRIAMINE
IMDG: DIETHYLENETRIAMINE
IATA-DGR: Diethylenetriamine

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA-DGR: 8

14.4 Packaging group

ADR/RID: II IMDG: II IATA-DGR: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA-DGR: no

14.6 Special precautions for user

None

14.7 Incompatible materials

Aluminum, Copper, Copper alloys, Zinc, zinc alloys

Other regulations

Hazchem Code : 2X

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No data available

SECTION 16: Other information**-Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

For further information please contact Info@evergreenchemicals.cn.