

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Diethylenetriamine > 98.5 %

Revision date: 18.07.2023

Product code: 27232

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

1.1. Product identifier

Diethylenetriamine > 98.5 %

REACH Registration Number: 01-2119473793-27-XXXX
CAS No: 111-40-0
Index No: 612-058-00-X
EC No: 203-865-4

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit
Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 2; H330
Acute Tox. 4; H312
Acute Tox. 4; H302
Skin Corr. 1B; H314
Eye Dam. 1; H318
Skin Sens. 1; H317
STOT SE 3; H335

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

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Pictograms:



Hazard statements

- 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 statements

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C4H13N3
Molecular weight: 103,16 g/mol

Hazardous components

CAS No	Chemical name	Quantity
	EC No	Index No
		REACH No
	Classification (Regulation (EC) No 1272/2008)	
111-40-0	2,2'-iminodiethylamine	100 %
	203-865-4	612-058-00-X
		01-2119473793-27-XXXX
	Acute Tox. 2, Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, STOT SE 3; H330 H312 H302 H314 H318 H317 H335	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
111-40-0	203-865-4	2,2'-iminodiethylamine	100 %
	inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); dermal: ATE = 1100 mg/kg; oral: LD50 = ca. 1140 mg/kg		

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

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General information

Self-protection of the first aider

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water.

Do not allow a neutralisation agent to be drunk. Do NOT induce vomiting.

Call a physician immediately.

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

Irritant

corrosive

Dyspnoea

Risk of serious damage to eyes.

Allergic reactions

Cough

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

Foam

Carbon dioxide (CO₂)

Extinguishing powder

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquids

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NO_x)

Carbon dioxide (CO₂) Carbon monoxide

In case of warming:

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Heating causes rise in pressure with risk of bursting.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

In case of fire and/or explosion do not breathe fumes.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

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Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- Provide adequate ventilation.
- Use personal protection equipment.
- Avoid contact with skin, eyes and clothes.
- Remove persons to safety.
- Emergency procedures
- Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

- Avoid exposure - obtain special instructions before use.
- Read label before use. Handle and open container with care.
- When using do not eat, drink, smoke, sniff. Keep container tightly closed.
- Use personal protection equipment. Use extractor hood (laboratory).
- Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

Advice on protection against fire and explosion

- In case of warming:
Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Advice on general occupational hygiene

- Keep away from food, drink and animal feedingstuffs.

Further information on handling

- Take off immediately all contaminated clothing and wash it before reuse.
- Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.
- Store in a place accessible by authorized persons only.

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7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

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

Further information on storage conditions

Keep cool. Protect from sunlight.
storage temperature < +30°C

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
111-40-0	1,4,7-Tri-(aza)-heptane	1	4		TWA (8 h)	

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
111-40-0	2,2'-iminodiethylamine			
Worker DNEL, long-term		inhalation	systemic	15,4 mg/m ³
Worker DNEL, acute		inhalation	systemic	92,1 mg/m ³
Worker DNEL, long-term		inhalation	local	0,87 mg/m ³
Worker DNEL, acute		inhalation	local	2,6 mg/m ³
Worker DNEL, long-term		dermal	systemic	11,4 mg/kg bw/day
Worker DNEL, long-term		dermal	local	1,1 mg/cm ²
Consumer DNEL, long-term		inhalation	systemic	4,6 mg/m ³
Consumer DNEL, acute		inhalation	systemic	27,5 mg/m ³
Consumer DNEL, long-term		dermal	systemic	4,88 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	4,88 mg/kg bw/day

PNEC values

CAS No	Substance	Value
111-40-0	2,2'-iminodiethylamine	
Freshwater		0,56 mg/l
Freshwater (intermittent releases)		0,32 mg/l
Marine water		0,056 mg/l
Freshwater sediment		1072 mg/kg
Marine sediment		107,2 mg/kg
Micro-organisms in sewage treatment plants (STP)		6 mg/l
Soil		7,97 mg/kg

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8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles

Face protection umbrella

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation KCL 720 Camapren®

Suitable material: CR (polychloroprene, chloroprene rubber) 0,65 mm

Wearing time with permanent contact > 480 min

By short-term hand contact

Trade name/designation KCL 720 Camapren®

Suitable material: CR (polychloroprene, chloroprene rubber) 0,65 mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. 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 (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Take off immediately all contaminated clothing and wash it before reuse.

Wear fire resistant or flame retardant clothing.

Wash hands and face before breaks and after work and take a shower if necessary.

Draw up and observe skin protection programme.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Filtering device with filter or ventilator filtering device of type: ABEK

Environmental exposure controls

Do not allow to enter into surface water or drains.

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Danger of explosion

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	like: Ammonia
Odour threshold:	No data available

Melting point/freezing point:	-35 °C	Test method
Boiling point or initial boiling point and boiling range:	206-209 °C	
Flammability:	No data available	

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Lower explosion limits:	1 vol. %
Upper explosion limits:	10 vol. %
Flash point:	96,7 °C
Auto-ignition temperature:	325 °C
pH-Value (at 20 °C):	>12 (100 g/l)
Viscosity / kinematic: (at 20 °C)	7,16 mm ² /s
Water solubility: (at 20 °C)	Soluble in: Water
Solubility in other solvents	
No data available	
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure: (at 20 °C)	0,2 hPa
Vapour pressure:	No data available
Density:	0,95 g/cm ³
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Sustaining combustion: No data available

Self-ignition temperature 358°C

Solid: No data available

Gas: No data available

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate: No data available

Solvent separation test: No data available

Solvent content: No data available

Solid content: No data available

Sublimation point: No data available

Softening point: No data available

Pour point: No data available

No data available

Viscosity / dynamic: 5,05 mPa·s

(at 20 °C)

Flow time: No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

In case of warming:

Vapours may form explosive mixtures with air.

10.2. Chemical stability

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The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Oxidising agent
Strong acid
Nitric acid

10.4. Conditions to avoid

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

10.5. Incompatible materials

copper
Copper alloys
Zinc
Aluminium

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

Acute toxicity

Fatal if inhaled.
Harmful if swallowed.
Harmful in contact with skin.
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).
Pulmonary oedema

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
111-40-0	2,2'-iminodiethylamine				
	oral	LD50 mg/kg	ca. 1140	Rat	Study report (1957) Conducted prior to guidelines
	dermal	ATE mg/kg	1100		
	inhalation vapour	ATE	0,5 mg/l		
	inhalation dust/mist	ATE	0,05 mg/l		

Irritation and corrosivity

Causes severe skin burns and eye damage.
Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (2,2'-iminodiethylamine)

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

May cause respiratory irritation. (2,2'-iminodiethylamine)
kidneys

STOT-repeated exposure

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

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Aspiration hazard

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

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Further information

Irritant
corrosive
Dyspnoea
Risk of serious damage to eyes.
Allergic reactions
Cough

SECTION 12: Ecological information

12.1. Toxicity

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
111-40-0	2,2'-iminodiethylamine					
	Acute fish toxicity	LC50 430 mg/l	96 h	Poecilia reticulata	Study report (1989)	EU Method C.1
	Acute algae toxicity	ErC50 1164 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (1990)	OECD Guideline 201
	Acute crustacea toxicity	EC50 64,6 mg/l	48 h	Daphnia magna	Study report (1989)	EU Method C.2
	Fish toxicity	NOEC > 10 mg/l	28 d	Gasterosteus aculeatus	Study report (1992)	OECD Guideline 210
	Crustacea toxicity	NOEC 5,6 mg/l	21 d	Daphnia magna	Study report (1992)	EU Method C.20
	Acute bacteria toxicity	(EC50 32,7 mg/l)	3 h	nitrifying bacteria	Study report (1989)	other: Blok, 1974; Respirometric measure

12.2. Persistence and degradability

87 %; 21 d; aerob
OECD 301D
Readily biodegradable (according to OECD criteria).

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
111-40-0	2,2'-iminodiethylamine	-1,58

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BCF

CAS No	Chemical name	BCF	Species	Source
111-40-0	2,2'-iminodiethylamine	> 2,8	Cyprinus carpio	Publication (1992)

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Do not allow to enter into surface water or drains.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number or ID number:	UN 2079
14.2. UN proper shipping name:	DIETHYLENETRIAMINE
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Classification code:	C7
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 2079
14.2. UN proper shipping name:	DIETHYLENETRIAMINE
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Classification code:	C7
Limited quantity:	1 L
Excepted quantity:	E2

Marine transport (IMDG)

14.1. UN number or ID number:	UN 2079
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14.2. UN proper shipping name:	DIETHYLENETRIAMINE
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Special Provisions:	-
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 2079
14.2. UN proper shipping name:	DIETHYLENETRIAMINE
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Limited quantity Passenger:	0.5 L
Passenger LQ:	Y840
Excepted quantity:	E2
IATA-packing instructions - Passenger:	851
IATA-max. quantity - Passenger:	1 L
IATA-packing instructions - Cargo:	855
IATA-max. quantity - Cargo:	30 L

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):
Entry 3

Information according to 2012/18/EU (SEVESO III): H2 ACUTE TOXIC

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 1 - slightly hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 12.

Abbreviations and acronyms

Acute Tox: Acute toxicity
Skin Corr: Skin corrosion
Eye Dam: Eye damage
Skin Sens: Skin sensitisation
STOT SE: Specific target organ toxicity - single exposure

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.
H302+H312 Harmful if swallowed or in contact with skin.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.

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H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.