

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 05.11.2010

Version 7.7

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Catalogue No.	820465
Product name	Diethylamine for synthesis
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal (www.merck-chemicals.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 2, Inhalation, H330

Acute toxicity, Category 1, Dermal, H310

Acute toxicity, Category 2, Oral, H300

Skin corrosion, Category 1A, H314

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H411

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

Classification (67/548/EEC or 1999/45/EC)

T+; R26/27

T; R25

C; R34

N; R50/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



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Catalogue No. 820465
Product name Dihexylamine for synthesis

Signal word

Danger

Hazard statements

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.

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

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

Precautionary statements

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

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

CAS-No. 143-16-8

Labelling (67/548/EEC or 1999/45/EC)

Symbol(s)	T+	Very toxic
	N	Dangerous for the environment
R-phrases(s)	25-26/27-34-50/53	Toxic if swallowed. Very toxic by inhalation and in contact with skin. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	26-28-36/37/39-45-61	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/ Safety data sheets.
EC-No.	205-588-4	

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Reduced labelling (≤125 ml)

Symbol(s)	T+	Very toxic
	N	Dangerous for the environment
R-phrases(s)	25-26/27-34	Toxic if swallowed. Very toxic by inhalation and in contact with skin. Causes burns.
S-phrases(s)	26-28-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other hazards

None known.

3. Composition/information on ingredients

Formula	$\text{CH}_3(\text{CH}_2)_5\text{NH}(\text{CH}_2)_5\text{CH}_3$	$\text{C}_{12}\text{H}_{27}\text{N}$ (Hill)
CAS-No.	143-16-8	
EC-No.	205-588-4	
Molar mass	185,35 g/mol	

4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Immediately apply artificial respiration. If necessary oxygen.
Immediately call in physician.

After skin contact: wash off with plenty of water. Swab with polyethylene glycol 400. Immediately remove contaminated clothing. Call a physician immediately.

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

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, irritant effects, Cough, Shortness of breath, Dizziness, Nausea, Vomiting
Risk of blindness!

4.3 Indication of immediate medical attention and special treatment needed

No information available.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO_2), 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

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Combustible material, Vapours 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.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters

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

Further information

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

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into 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 7.2 and 10.5).

Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

7. Handling and storage

7.1 Precautions for safe handling

Observe label precautions.

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

7.2 Conditions for safe storage, including any incompatibilities

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

Store at +15°C to +25°C.

7.3 Specific end uses

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

8. Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Engineering measures

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Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. Work under hood. Do not inhale substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	> 480 min

splash contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 30 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril® -Velours (full contact), KCL 898 Butoject® (splash contact).

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).

Other protective equipment:

protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Respirator.

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.

Environmental exposure controls

Do not empty into drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form liquid

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Colour	colourless
Odour	amine-like
Odour Threshold	No information available.
pH	9,9 at 0,3 g/l 25 °C
Melting point	3 °C
Boiling point/boiling range	192 - 194 °C
Boiling point/boiling range	236 °C at 1.013 hPa
Flash point	103 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	0,7 %(V)
Upper explosion limit	5,9 %(V)
Vapour pressure	0,05 hPa at 20 °C
Relative vapour density	No information available.
Relative density	0,79 g/cm ³ at 20 °C
Water solubility	0,3 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: 4,81 A remarkable bioaccumulation potential is expected (log Po/w >3). (External MSDS)
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Oxidizing properties	No information available.

9.2 Other data

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Ignition temperature 250 °C
Method: DIN 51794

10. Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Exothermic reaction with:

Strong oxidizing agents, acids

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

10.4 Conditions to avoid

Strong heating.

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

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

in the event of fire: See chapter 5.

11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 rat

Dose: 42 mg/kg

(External MSDS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

absorption

Acute inhalation toxicity

LC50 rat

Dose: 0,23 mg/l, 4 h

(External MSDS)

Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Symptoms may be delayed., Possible damages:, damage of respiratory tract

absorption

Acute dermal toxicity

LD50 rabbit

Dose: < 160 mg/kg

(External MSDS)

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LD50 rat
Dose: 25 - 50 mg/kg
(External MSDS)

absorption

Skin irritation

rabbit

Result: Causes burns.
(External MSDS)

Causes poorly healing wounds.

Causes burns.

Eye irritation

rabbit

Result: Causes burns.
(External MSDS)

Causes serious eye damage.

Risk of serious damage to eyes.

Risk of blindness!

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

In vitro methods (National Toxicology Program)

Specific target organ toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

11.2 Further information

Further information

Systemic effects:

After absorption:

Nausea, Vomiting, Dizziness, rise in blood pressure

Other information

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

Further data:

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

12. Ecological information

12.1 Toxicity

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Product name Dihexylamine for synthesis

Toxicity to fish

LC50

Species: Pimephales promelas (fathead minnow)

Dose: 0,78 mg/l

Exposure time: 96 h

(Hommel)

Toxicity to daphnia and other aquatic invertebrates.

EC50

Species: Daphnia magna (Water flea)

Dose: 0,97 mg/l

Exposure time: 48 h

(ECOTOX Database)

Toxicity to bacteria

EC5

Species: Pseudomonas putida

Dose: 140 mg/l

(Hommel)

12.2 Persistence and degradability

Biodegradability

Result: Readily biodegradable.

90 - 100 %

Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 4,81

A remarkable bioaccumulation potential is expected (log Po/w >3). (External MSDS)

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

Additional ecological information

Do not allow to run into surface waters, wastewater, or soil.

13. Disposal considerations

Waste treatment methods

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

14. Transport information

ADR/RID

UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (DIHEXYLAMIN), 6.1 (8), II

IATA

UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (DIHEXYLAMIN), 6.1 (8), II

IMDG

UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (DIHEXYLAMIN), 6.1 (8), II

EmS

F-A S-B

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

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15. Regulatory information

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

EU regulations

Major Accident Hazard 96/82/EC
Legislation Very toxic
1
Quantity 1: 5 t
Quantity 2: 20 t

96/82/EC
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

National legislation

Storage class VCI 6.1A Combustible substances, toxic

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H300 Fatal if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Full text of R-phrases referred to under sections 2 and 3

R25 Toxic if swallowed.
R26/27 Very toxic by inhalation and in contact with skin.
R34 Causes burns.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Training advice

Provide adequate information, instruction and training for operators.

Regional representation: This information is given on the authorised Safety Data Sheet for your country.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.
