

SAFETY DATA SHEET

1. PRODUCT

1.1 Product identifiers

Name: N,N-Diethylthiourea

CAS-No.: 105-55-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Dermal (Category 4), H312

Serious eye damage (Category 1), H318

Skin sensitisation (Sub-category 1B), H317


Specific target organ toxicity - repeated exposure (Category 1), Thyroid, H372

Acute aquatic toxicity (Category 3), H402

Chronic aquatic toxicity (Category 3), H412

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 H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H372 Causes damage to organs (Thyroid) through prolonged or repeated exposure. H412 Harmful to aquatic life with long lasting effects. |
| Precautionary statement(s) | P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell. 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. P314 Get medical advice/ attention if you feel unwell. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. P501 Dispose of contents/ container to an approved waste disposal plant. |

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: $C_5H_{12}N_2S$
Molecular weight: 132.23 g/mol
CAS-No.: 105-55-5
EC-No.: 203-308-5

Hazardous components

| Component | Classification | Concentration |
|------------------------|---|---------------|
| 1,3-Diethyl-2-thiourea | Acute Tox. 4; Eye Dam. 1; Skin Sens. 1B; STOT RE 1; Aquatic Acute 3; Aquatic Chronic 3; H302 + H312, H317, H318, H372, H412 | <= 100 % |

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

| |
|---|
| General advice |
| Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. |
| If inhaled |
| If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact |
| Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician. |
| In case of eye contact |
| Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. |
| If swallowed |
| Never give anything by mouth to an unconscious person. Rinse mouth with water. 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

4.2 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Hazardous components without workplace control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

| | |
|---------------------|--|
| Eye/face protection | Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). |
|---------------------|--|

| | |
|-----------------------------------|---|
| Skin protection | <p>Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.</p> <p>Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)</p> <p>Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374</p> <p>If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.</p> |
| Body Protection | Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. |
| Respiratory protection | Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). |
| Control of environmental exposure | Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. |

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Appearance | Form: crystalline Colour: white |
| Odour | No data available |
| Odour Threshold | No data available |
| pH | No data available |
| Melting point/freezing point | Melting point/range: 76 - 78 °C (169 - 172 °F) - lit. |
| Initial boiling point and boiling range | 200 - 230 °C (392 - 446 °F) at 1,023 hPa (767 mmHg) - OECD Test Guideline 103 |
| Flash point | No data available |
| Evaporation rate | No data available |
| Flammability (solid, gas) | The product is not flammable. - Flammability (solids) |
| Upper/lower flammability or explosive limits | No data available |
| Vapour pressure | No data available |
| Vapour density | No data available |
| Relative density | ca.0.773 g/cm ³ at 20 °C (68 °F) |
| Water solubility | 42 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - soluble |
| Partition coefficient: n-octanol/water | log Pow: 0.57 |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

9.2 Other safety information

Solubility in other solvents:

Methanol - soluble

Acetone - soluble

Benzene - soluble

Chloroform - soluble

Diethylether - soluble

Surface tension: 76.1 mN/m at 21.5 °C (70.7 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

| |
|---|
| Acute toxicity |
| LD50 Oral - Rat - 316 mg/kg Inhalation: No data available LD50 Dermal - Rat - male and female - 2,000 mg/kg (OECD Test Guideline 402) No data available |
| Skin corrosion/irritation |
| Skin - Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404) |
| Serious eye damage/eye irritation |
| Eyes - Rabbit Result: Risk of serious damage to eyes. (OECD Test Guideline 405) |
| Respiratory or skin sensitisation |
| Maximisation Test - Guinea pig The product is a skin sensitiser, sub-category 1B. |
| Germ cell mutagenicity |
| Ames test S. typhimurium Result: negative OECD Test Guideline 474 Rat - male and female Result: negative |
| Carcinogenicity |

| |
|---|
| <p>Carcinogenicity - Rat - Oral Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Thyroid tumors. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,3-Diethyl-2-thiourea) NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.</p> |
| <p>Reproductive toxicity</p> |
| <p>No data available No data available</p> |
| <p>Specific target organ toxicity -single exposure</p> |
| <p>No data available</p> |
| <p>Specific target organ toxicity -repeated exposure</p> |
| <p>Causes damage to organs through prolonged or repeated exposure. - Thyroid</p> |
| <p>Aspiration hazard</p> |
| <p>No data available</p> |
| <p>Additional Information</p> |
| <p>Repeated dose toxicity Rat - male and female - Oral - NOAEL : 7.35 mg/kg RTECS: YS9800000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.</p> |

12. ECOLOGICAL INFORMATION

12.1 Toxicity

| | |
|---|---|
| Toxicity to fish | static test LC50 - Danio rerio (zebra fish) - 910 mg/l - 96 h (OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - 56 mg/l - 48 h (OECD Test Guideline 202) |
| Toxicity to algae | static test EC50 - Pseudokirchneriella subcapitata - 200 mg/l - 72 h (OECD Test Guideline 201) |
| Toxicity to bacteria | No data available |

12.2 Persistence and degradability

| | |
|------------------|--|
| Biodegradability | aerobic - Exposure time 28 d Result: 3 % - Not readily biodegradable. (OECD Test Guideline 301D) |
|------------------|--|

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 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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|----------------|
| Product |
|----------------|

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

| Component | CAS-No. | Revision Date |
|------------------------|----------|---------------|
| 1,3-Diethyl-2-thiourea | 105-55-5 | 1993-04-24 |

Pennsylvania Right To Know Components

| Component | CAS-No. | Revision Date |
|------------------------|----------|---------------|
| 1,3-Diethyl-2-thiourea | 105-55-5 | 1993-04-24 |

New Jersey Right To Know Components

| Component | CAS-No. | Revision Date |
|------------------------|----------|---------------|
| 1,3-Diethyl-2-thiourea | 105-55-5 | 1993-04-24 |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

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

Acute Tox. Acute toxicity

Aquatic Acute Acute aquatic toxicity

Aquatic Chronic Chronic aquatic toxicity

Eye Dam. Serious eye damage

H302 Harmful if swallowed.

H302 + H312 Harmful if swallowed or in contact with skin

H312 Harmful in contact with skin.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H372 Causes damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard: 2

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 2

Fire Hazard: 0

Reactivity Hazard: 0
