

MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

| | |
|--------------------|--|
| Product form | : Substance |
| | : |
| EC no | : 203-851-8 |
| CAS No | : 111-26-2 |
| Product code | : 4054J |
| Formula | : C6H15N |
| Chemical structure | : $\text{CH}_3(\text{CH}_2)_4\text{CH}_2\text{NH}_2$ |
| Synonyms | : 1-Aminohexane |

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Industrial;For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

| | |
|---|------|
| Flammable liquids, Category 3 | H226 |
| Acute toxicity (oral), Category 3 | H301 |
| Acute toxicity (dermal), Category 3 | H311 |
| Skin corrosion/irritation, Category 1B | H314 |

Full text of classification categories and H statements : see section 16

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Classification according to Directive 67/548/EEC or 1999/45/EC

T; R24
Xn; R22
C; R35
R10

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS05

GHS06

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour
H301+H311 - Toxic if swallowed or in contact with skin
H314 - Causes severe skin burns and eye damage

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor/...
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/...
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

| Name | Product identifier | % |
|-------------------------|--|-----|
| N-HEXYLAMINE EXTRA PURE | (CAS No) 111-26-2 (EC no) 203-851-8 | 100 |

Full text of R- and H-phrases: see section 16

3.2. Mixture

Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures after inhalation | : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention. |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Get medical advice/attention. |
| First-aid measures after eye contact | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. |
| First-aid measures after ingestion | : Rinse mouth. Do not induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell. |

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

| | |
|--------------------------------------|---|
| Symptoms/injuries | : Causes severe skin burns and eye damage. |
| Symptoms/injuries after skin contact | : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin. |
| Symptoms/injuries after ingestion | : Swallowing a small quantity of this material will result in serious health hazard. |

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Carbon dioxide. Dry powder. Foam. Water spray. |
| Unsuitable extinguishing media | : Do not use extinguishing media containing water. |

5.2. Special hazards arising from the substance or mixture

| | |
|------------------|--|
| Fire hazard | : Flammable liquid and vapour. |
| Explosion hazard | : May form flammable/explosive vapour-air mixture. |

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

| | |
|----------------------|-----------------------------------|
| Emergency procedures | : Evacuate unnecessary personnel. |
|----------------------|-----------------------------------|

6.1.2. For emergency responders

| | |
|----------------------|--|
| Protective equipment | : Equip cleanup crew with proper protection. |
| Emergency procedures | : Ventilate area. |

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

| | |
|-------------------------|--|
| Methods for cleaning up | : On land, sweep or shovel into suitable containers. |
|-------------------------|--|

6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

| | |
|-----------------------------------|---|
| Additional hazards when processed | : Handle empty containers with care because residual vapours are flammable. |
| Precautions for safe handling | : No naked lights. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. |
| Hygiene measures | : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|------------------------|---|
| Technical measures | : Proper grounding procedures to avoid static electricity should be followed. Use only non-sparking tools. Use explosion-proof electrical/ventilating/lighting/... equipment. |
| Storage conditions | : Keep container tightly closed. Keep in fireproof place. |
| Incompatible materials | : Heat sources. |

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

| | |
|--------------------------|--------------------------------------|
| Hand protection | : Protective gloves |
| Eye protection | : Chemical goggles or safety glasses |
| Skin and body protection | : Wear suitable protective clothing |
| Respiratory protection | : Wear respiratory protection |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|-------------------------|
| Physical state | : Liquid |
| Colour | : Colourless. |
| Odour | : No data available |
| Odour threshold | : No data available |
| pH | : 11.6 at 10g/l at 20°C |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : -23 °C |
| Freezing point | : No data available |
| Boiling point | : 131 - 132 °C |
| Flash point | : 27 °C |
| Auto-ignition temperature | : No data available |

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| | |
|----------------------------------|-----------------------------------|
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : Flammable liquid and vapour |
| Vapour pressure | : 10.6 hPa |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : No data available |
| Density | : 0.766 g/cm ³ at 25°C |
| Solubility | : No data available |
| Log Pow | : 1.9 |
| Viscosity, kinematic | : 1.07 mm ² /s at 23°C |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Oxidizing agent. Strong acids.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin.

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: 11.6 at 10g/l at 20°C

Serious eye damage/irritation : Serious eye damage, category 1, implicit
pH: 11.6 at 10g/l at 20°C

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

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Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

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| | |
|----------------------|---------------------------------|
| Viscosity, kinematic | 1.07 mm ² /s at 23°C |
|----------------------|---------------------------------|

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

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| | |
|---------|-----|
| Log Pow | 1.9 |
|---------|-----|

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

No additional information available

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2734

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| | |
|---------------|--------|
| UN-No. (IMDG) | : 2734 |
| UN-No.(IATA) | : 2734 |
| UN-No.(ADN) | : 2734 |
| UN-No. (RID) | : 2734 |

14.2. UN proper shipping name

| | |
|---------------------------------------|--|
| Proper Shipping Name (ADR) | : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. / POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| Proper Shipping Name (IMDG) | : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| Proper Shipping Name (IATA) | : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| Proper Shipping Name (ADN) | : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| Proper Shipping Name (RID) | : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. |
| Transport document description (ADR) | : UN 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. / POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., 8 (3), I, (D/E) |
| Transport document description (IMDG) | : UN 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., 8 (3), I |
| Transport document description (IATA) | : UN 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., 8 (3), I |
| Transport document description (ADN) | : UN 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., 8 (3), I |
| Transport document description (RID) | : UN 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., 8 (3), I |

14.3. Transport hazard class(es)

ADR

| | |
|----------------------------------|---------|
| Transport hazard class(es) (ADR) | : 8 (3) |
| Danger labels (ADR) | : 8, 3 |



IMDG

| | |
|-----------------------------------|---------|
| Transport hazard class(es) (IMDG) | : 8 (3) |
| Danger labels (IMDG) | : 8, 3 |



IATA

| | |
|-----------------------------------|---------|
| Transport hazard class(es) (IATA) | : 8 (3) |
| Hazard labels (IATA) | : 8, 3 |



ADN

| | |
|----------------------------------|---------|
| Transport hazard class(es) (ADN) | : 8 (3) |
| Danger labels (ADN) | : 8, 3 |

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RID

Transport hazard class(es) (RID) : 8 (3)

Danger labels (RID) : 8, 3



14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : CF1

Special provision (ADR) : 274

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P001

Mixed packing provisions (ADR) : MP8, MP17

Portable tank and bulk container instructions (ADR) : T14

Portable tank and bulk container special provisions (ADR) : TP2, TP27

Tank code (ADR) : L10BH

Vehicle for tank carriage : FL

Transport category (ADR) : 1

Special provisions for carriage - Operation (ADR) : S2, S14

Hazard identification number (Kemler No.) : 883

Orange plates :



Tunnel restriction code (ADR) : D/E

EAC code : •2W

APP code : A(fl)

- Transport by sea

Special provision (IMDG) : 274

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| | |
|--------------------------------|-------------|
| Limited quantities (IMDG) | : 0 |
| Excepted quantities (IMDG) | : E0 |
| Packing instructions (IMDG) | : P001 |
| Tank instructions (IMDG) | : T14 |
| Tank special provisions (IMDG) | : TP2, TP27 |
| EmS-No. (Fire) | : F-E |
| EmS-No. (Spillage) | : S-C |
| Stowage category (IMDG) | : A |
| Segregation (IMDG) | : SG35 |

- Air transport

| | |
|--|-------------|
| PCA Excepted quantities (IATA) | : E0 |
| PCA Limited quantities (IATA) | : Forbidden |
| PCA limited quantity max net quantity (IATA) | : Forbidden |
| PCA packing instructions (IATA) | : 850 |
| PCA max net quantity (IATA) | : 0.5L |
| CAO packing instructions (IATA) | : 854 |
| CAO max net quantity (IATA) | : 2.5L |
| ERG code (IATA) | : 8F |

- Inland waterway transport

| | |
|-----------------------------------|-----------------|
| Classification code (ADN) | : CF1 |
| Special provisions (ADN) | : 274 |
| Limited quantities (ADN) | : 0 |
| Excepted quantities (ADN) | : E0 |
| Equipment required (ADN) | : PP, EP, EX, A |
| Ventilation (ADN) | : VE01 |
| Number of blue cones/lights (ADN) | : 1 |

- Rail transport

| | |
|---|--------------|
| Classification code (RID) | : CF1 |
| Special provision (RID) | : 274 |
| Limited quantities (RID) | : 0 |
| Excepted quantities (RID) | : E0 |
| Packing instructions (RID) | : P001 |
| Mixed packing provisions (RID) | : MP8, MP17 |
| Portable tank and bulk container instructions (RID) | : T14 |
| Portable tank and bulk container special provisions (RID) | : TP2, TP27 |
| Tank codes for RID tanks (RID) | : L10BH |
| Special provisions for RID tanks (RID) | : TU38, TE22 |
| Transport category (RID) | : 1 |
| Hazard identification number (RID) | : 883 |

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

N-HEXYLAMINE EXTRA PURE is not on the REACH Candidate List

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N-HEXYLAMINE EXTRA PURE is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

AwSV/VwVwS Annex reference : Water hazard class (WGK) 1, slightly hazardous to water (Classification according to VwVwS, Annex 2; WGK No 1615)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

Classification remarks : R10 <H226;H301+H311;H314>; Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

| | |
|-----------------------|---|
| Acute Tox. 3 (Dermal) | Acute toxicity (dermal), Category 3 |
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3 |
| Flam. Liq. 3 | Flammable liquids, Category 3 |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B |
| H226 | Flammable liquid and vapour |
| H301 | Toxic if swallowed |
| H311 | Toxic in contact with skin |
| H314 | Causes severe skin burns and eye damage |
| R10 | Flammable |
| R22 | Harmful if swallowed |
| R24 | Toxic in contact with skin |
| R35 | Causes severe burns |
| C | Corrosive |
| T | Toxic |
| Xn | Harmful |

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product