

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifiers**Product name: **HEXAMETHYLENEDIAMINE**CAS-No.: **124-09-4**Product Number: **L77471****1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR,

UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 Emergency telephone numberEmergency Phone #: **+44 (0)845 1200 506****2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]:** Acute toxicity, Dermal (Category 4) Acute toxicity, Oral (Category 4) Specific target organ toxicity - single exposure (Category 3) Skin corrosion (Category 1B)**Classification according to EU Directives 67/548/EEC or 1999/45/EC:** Causes burns. Harmful in contact with skin and if swallowed. Irritating to respiratory system.**2.2 Label elements**

Pictogram

Signal word

Danger

Hazard statement(s): H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H335 May cause respiratory irritation.**Precautionary statement(s):** P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. 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 or doctor/ physician.**According to European Directive 67/548/EEC as amended.**



Hazard symbol(s):

R-phrase(s): R21/22 Harmful in contact with skin and if swallowed. R34 Causes burns. R37 Irritating to respiratory system.

S-phrase(s): S22 Do not breathe dust. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other hazards – no data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

1,6-Diaminohexane (Synonyms: 1,6-Hexanediamine)

Formula:	$\text{NH}_2(\text{CH}_2)_6\text{NH}_2$
Molecular Weight:	116.2g/mol
CAS-No.:	124-09-4
EC-No.:	204-679-6
Index-No.:	612-104-00-9

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.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed: burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

4.3 Indication of immediate medical attention and special treatment needed: no data available

5. FIRE-FIGHTING 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: Carbon oxides, nitrogen oxides (NOx)

5.3 Precautions for fire-fighters: Wear self contained breathing apparatus for fire fighting 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.

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. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities: Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic. Store under inert gas.

7.3 Specific end uses: no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters: Contains no substances with occupational exposure limit values.

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: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., 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).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

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|---|---------------------------------|--|
| a) Appearance: | Form: Solid | Colour: Colourless |
| b) Odour: | no data available | |
| c) Odour Threshold: | no data available | |
| d) pH: | 12.4 at 100 g/l at 25 °C | |
| e) Melting/freezing point: | 42 - 45 °C | Melting point/range: no data available |
| f) Initial boiling point and boiling range: | 204 - 205 °C | |
| g) Flash point: | 80 °C - closed cup | |
| h) Evaporation rate: | no data available | |
| i) Flammability (solid, gas): | no data available | |
| j) Upper/lower flammability or explosive limits: | 0.7 %- 6.3 %(V) | |
| k) Vapour pressure: | no data available | |
| l) Vapour density: | 4.01 - (Air = 1.0) | |
| m) Relative density: | 0.89 g/cm ³ at 25 °C | |
| n) Water solubility: | no data available | |
| o) Partition coefficient: n-octanol/water: log Pow: | 0.02 | |
| p) Autoignition temperature: | no data available | |
| q) Decomposition temperature: | no data available | |
| r) Viscosity: | no data available | |
| s) Explosive properties: | no data available | |
| t) Oxidizing properties: | no data available | |

9.2 Other safety information: no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity: no data available

10.2 Chemical stability: no data available

10.3 Possibility of hazardous reactions: no data available

10.4 Conditions to avoid: no data available

10.5 Incompatible materials: acids, Acid chlorides, Acid anhydrides, Strong oxidizing agents, Carbon dioxide (CO₂)

10.6 Hazardous decomposition products: Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: LD50 Oral - rat - 750 mg/kg

LD50 Dermal - rabbit - 1,110 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: May cause respiratory irritation.

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.

Ingestion Harmful if swallowed. Causes burns.

Skin Harmful if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

Signs and Symptoms of Exposure: burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Additional Information: RTECS: MO1180000

12. ECOLOGICAL INFORMATION

12.1 Toxicity: Toxicity to fish LC50 - *Leuciscus idus* (Golden orfe) - 62 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - *Daphnia magna* (Water flea) - 23.4 mg/l - 48 h

12.2 Persistence and degradability: Biodegradability Result: 56 % - Partially biodegradable.

12.3 Bioaccumulative potential: no data available

12.4 Mobility in soil: no data available

12.5 Results of PBT and vPvB assessment: no data available

12.6 Other adverse effects: Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. 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

14.1 UN-Number

ADR/RID: 2280 IMDG: 2280 IATA: 2280

14.2 UN proper shipping name

ADR/RID: HEXAMETHYLENEDIAMINE, SOLID

IMDG: HEXAMETHYLENEDIAMINE, SOLID

IATA: HEXAMETHYLENEDIAMINE, SOLID

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

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

14.6 Special precautions for users

no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture: no data available

15.2 Chemical Safety Assessment: no data available

16. OTHER INFORMATION

no data available