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| Azobenzene CAS No 103-33-3 | MATERIAL SAFETY DATA SHEET SDS/MSDS |
|---|--|

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

1.1 Product identifiers

Product name : **Azobenzene**

CAS-No. : 103-33-3

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

Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet

Company : Central Drug House (P) Ltd
 7/28 Vardaan House
 Ansari Road Daryaganj
 New Delhi-110002
 INDIA

Telephone : +91 11 49404040

Email : care@cdhfinechemical.com

1.4 Emergency telephone number

Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302
 Acute toxicity, Inhalation (Category 4), H332
 Germ cell mutagenicity (Category 2), H341
 Carcinogenicity (Category 1B), H350
 Specific target organ toxicity - repeated exposure (Category 2), H373
 Acute aquatic toxicity (Category 1), H400
 Chronic aquatic toxicity (Category 1), H410

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

| | |
|---------------------|--|
| Hazard statement(s) | |
| H302 + H332 | Harmful if swallowed or if inhaled |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H410 | Very toxic to aquatic life with long lasting effects. |

| | |
|----------------------------|---|
| Precautionary statement(s) | |
| P201 | Obtain special instructions before use. |
| P273 | Avoid release to the environment. |
| P281 | Use personal protective equipment as required. |
| P308 + P313 | IF exposed or concerned: Get medical advice/ attention. |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

Supplemental Hazard Statements none

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | | |
|------------------|---|--|
| Formula | : | C ₆ H ₅ N=NC ₆ H ₅ |
| Molecular weight | : | 182.22 g/mol |
| CAS-No. | : | 103-33-3 |
| EC-No. | : | 203-102-5 |
| Index-No. | : | 611-001-00-6 |

Hazardous ingredients according to Regulation (EC) No 1272/2008

| Component | | Classification | Concentration |
|-------------------|--------------|--|---------------|
| Azobenzene | | | |
| CAS-No. | 103-33-3 | Acute Tox. 4; Muta. 2; Carc. 1B; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H332, H341, H350, H373, H400, H410 | <= 100 % |
| EC-No. | 203-102-5 | | |
| Index-No. | 611-001-00-6 | M-Factor - Aquatic Acute: 10 | |

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

SECTION 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. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

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
- 4.3 Indication of any immediate medical attention and special treatment needed**
No data available

SECTION 5: Firefighting measures

- 5.1 Extinguishing media**
Suitable extinguishing media
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 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**
No data available

SECTION 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.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.
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**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Store under inert gas.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects
- 7.3 Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 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

Safety glasses with side-shields conforming to EN166 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.

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 (EN 143) respirator cartridges as a backup to engineering controls. If th 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|--|
| a) Appearance | Form: crystals/powder/flakes |
| b) Odour | No data available |
| c) Odour Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range: 65 - 68 °C - lit. |
| f) Initial boiling point and boiling range | 293 °C - lit. |
| g) Flash point | 100.0 °C - closed cup |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapour pressure | 1.0 mmHg at 104.0 °C |
| l) Vapour density | No data available |
| m) Relative density | 1.09 g/mL at 25 °C |
| n) Water solubility | No data available |

| | |
|---|-------------------|
| o) Partition coefficient: n-octanol/water | No data available |
| p) Auto-ignition temperature | 477.0 °C |
| 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

SECTION 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 (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,000 mg/kg(Azobenzene)
Inhalation: No data available(Azobenzene)

Skin corrosion/irritation
No data available(Azobenzene)

Serious eye damage/eye irritation
No data available(Azobenzene)

Respiratory or skin sensitisation
No data available(Azobenzene)

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.(Azobenzene) In vitro tests showed mutagenic effects(Azobenzene)

Carcinogenicity

This product is or contains a component that has been reported to be proba EPA classification.(Azobenzene)

Possible human carcinogen(Azobenzene)

(Azobenzene)

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Azobenzene)

Reproductive toxicity

No data available(Azobenzene)

Specific target organ toxicity - single exposure

No data available(Azobenzene)

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available(Azobenzene)

Additional Information

RTECS: CN1400000

Absorption into the body leads to the formation of methemoglobin which in delayed 2 to 4 hours or longer.(Azobenzene)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Azobenzene)

Spleen. - (Azobenzene)

SECTION 12: Ecological information

12.1 Toxicity

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|---|--|
| Toxicity to fish | LC50 - Oryzias latipes - 0.5 mg/l - 48.0 h(Azobenzene) |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 5.00 mg/l - 24 h(Azobenzene) |
| | Immobilization EC50 - Daphnia (water flea) - 0.13 mg/l - 24 h(Azobenzene) |
| Toxicity to algae | EC50 - Desmodesmus subspicatus (green algae) - 1.70 - 2.50 mg/l - 48 h(Azobenzene) |

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(Azobenzene)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

SECTION 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 chem scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 3077

IMDG: 3077

IATA: 3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Azobenzene)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Azobenzene)

IATA: Environmentally hazardous substance, solid, n.o.s. (Azobenzene)

14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: no

IATA: yes

14.6 Special precautions for user

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: Regulatory information

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

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

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

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

H302 Harmful if swallowed.

H302 + H332 Harmful if swallowed or if inhaled

| | |
|------|--|
| H332 | Harmful if inhaled. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.