OXFORD LAB FINE CHEM LLP

Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com

Oxford
Range of
Laboratory Chemicals

MATERIAL SAFETY DATA SHEET

Meta-PHENYLENEDIAMINE 98%

(For Synthesis)

MSDS CAS: 108-45-2

Section 1: Chemical Product and Company Identification

Section 1: Chemical Product

Product Name: Meta-PHENYLENEDIAMINE

CAS#: 108-45-2

Synonym: Metaphenylenediamine; Phenylenediamine; m-Aminoaline; 1,3-Diaminobenzene; 1,3-Phenylenediamine; m-Diaminobenzene; 1,3-Benzenediamine

Chemical Name: Meta-Phenylenediamine

Chemical Formula: $C_6H_8N_2$

Brand: OXFORD

Details Of The Supplier Of The Safety Data Sheet:

Company identification: OXFORD LAB FINE CHEM LLP
Unit. No. 12, 1st Floor, Neminath Industrial Estate No. 6,
Navghar, Vasai (East). Palghar - 401 210.
Mumbai, Maharashtra, INDIA.
Tel: 91-250-2390989
Tel/Fax: 91-250-2390032

Section 2: Composition and Information on Ingredients

Composition:

Substance name	CAS #	% by Weight
{m-}Phenylenediamine	108-45-2	100

Toxicological Data on Ingredients: m-Phenylenediamine: ORAL (LD50): Acute: 280 mg/kg [Rat]. 67.7 mg/kg [Mouse]. 437 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE]. The substance may be toxic to kidneys, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation: Not available.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.

Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Combustible material: may burn but does not ignite readily. Combustible when exposed to heat or flame. When heated to decomposition it emits toxic fumes of NOx

Special Remarks on Explosion Hazards:
Containers may explode when heated. When heated, may form explosive mixtures in air

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill: Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:

Air Sensitive. Keep container tightly closed. Keep container in a cool, well-ventilated area. Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: **TWA: 0.1 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.**

Section 9: Physical and Chemical Properties

Physical state and appearance: **Solid. (Crystals solid.)**

Odor	**: Not available.**
Taste	**: Not available.**
Molecular Weight	**: 108.14 g/mole**
Color	**: White. It turns red on exposure to air**
pH (1% soln/water)	**: Not available.**

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Section 9: Physical and Chemical Properties (Continued)

Boiling Point	**: 284°C (543.2°F) - 287 C**
Melting Point	**: 62°C (143.6°F) - 63 C**
Critical Temperature	**: Not available.**
Specific Gravity	**: Not available.**
Vapor Pressure	**: Not applicable.**
Vapor Density	**: 3.7 (Air = 1)**
Volatility	**: Not available.**
Odor Threshold	**: Not available.**
Water/Oil Dist. Coeff.	**: The product is more soluble in water; log(oil/water) = -0.3**
Ionicity (in Water)	**: Not available.**
Dispersion Properties	**: See solubility in water, methanol, diethyl ether, n-octanol.**
Solubility	**: Soluble in cold water, methanol, n-octanol. Partially soluble in diethyl ether. Soluble in Ethanol, Chloroform, Dimethylformamide, Methyl Ethyl Ketone, Dioxane. Slightly soluble in isopropanol, Carbon Tetrachloride, Dibutyl Phthalate. Very slightly soluble in Benzene, Toluene, Xylene, Butanol.**

Section 10: Stability and Reactivity Data

Stability: **The product is stable.**

Instability Temperature: **Not available.**

Conditions of Instability: **Excess heat, incompatible materials, light, air**

Incompatibility with various substances: **Reactive with oxidizing agents.**

Corrosivity: **Not available.**

Special Remarks on Reactivity: **Air and light sensitive. It turns red on exposure to air**

Special Remarks on Corrosivity: **Not available.**

Polymerization: **Will not occur.**

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 67.7 mg/kg [Mouse].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. DEVELOPMENTAL TOXICITY: Classified Reproductive ystem/toxin/female [POSSIBLE]. May cause damage to the following organs: kidneys, liver.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, sensitizer), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects. May affect genetic material (mutagenic). May cause cancer based on animal test data

Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: Causes skin irritation. It is a strong irritant to skin. It may be absorbed through the skin Eyes: Causes eye irritation. It is a strong irritant to eyes. Inhalation: Causes respiratory tract irritation. It is a strong irritant by inhalation. Ingestion: Harmful if swallowed. High levels can interfere with the ability of the blood to carry Oxygen affecting the behavior/central nervous system (somnolence, convulsions, headache, fatigue, dizziness), respiration (cyanosis) and causing methemoglobinemia. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause dermatitis. Ingestion: Prolonged or repeated ingestion may affect urinary system (bladder, kidneys), liver.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:
The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

Land transport (ADR-RID)

General information: **Not regulated.**

Sea transport (IMDG) [English only]

General information: **Not regulated.**

Air transport (ICAO-IATA) [English only]

General information: **Not regulated.**

Section 15: Other Regulatory Information

Federal and State Regulations: **Connecticut hazardous material survey.: m-Phenylenediamine Minnesota: m-Phenylenediamine Massachusetts RTK: m-Phenylenediamine Massachusetts spill list: m-Phenylenediamine New Jersey: m-Phenylenediamine New Jersey spill list: m-Phenylenediamine TSCA 8(b) inventory: m-Phenylenediamine TSCA 8(a) IUR: m-Phenylenediamine TSCA 8(d) H and S data reporting: m-Phenylenediamine: effective: 4/29/83; sunset: 4/29/93 SARA 313 toxic chemical notification and release reporting: m-Phenylenediamine**

Other Regulations:
OSHA: **Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.**

Other Classifications:
WHMIS (Canada): **CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).**
DSCL (EEC): **R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36- Irritating to eyes. R43- May cause sensitization by skin contact. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S28- After contact with skin, wash immediately with plenty of [***] S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek**

Section 15: Other Regulatory Information (Continued)

medical advice immediately (show the label where possible). S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):
Health Hazard: 2
Fire Hazard: 1
Reactivity: 0
Personal Protection: E

National Fire Protection Association (U.S.A.):
Health: 2
Flammability: 1
Reactivity: 0
Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

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