Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Common Name/Trade Name: m-Phenylenediamine

Manufacturer: SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

Commercial Name(s): Not available.

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

Chemical Name: m-Phenylenediamine

Chemical Formula: C6-H8-N2

Supplier: SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

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Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) {m-}Phenylenediamine</td>
<td>108-45-2</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Exposure Limits

Toxicological Data on Ingredients: 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

Continued on Next Page
### Section 4. First Aid Measures

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Contact</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Skin Contact</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Serious Skin Contact</strong></td>
<td>Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.</td>
</tr>
<tr>
<td><strong>Serious Inhalation</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Serious Ingestion</strong></td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### 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. |
| **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. |

Continued on Next Page
### 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. 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.

### 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)

Consult local authorities for acceptable exposure limits.

### Section 9. Physical and Chemical Properties

**Physical state and appearance**

Solid. (Crystals solid.)

**Odor**

Not available.

**Molecular Weight**

108.14 g/mole

**Taste**

Not available.

**Color**

White. It turns red on exposure to air.

**pH (1% soln/water)**

Not available.

**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**

Not available.

**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**


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*Continued on Next Page*
Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Excess heat, incompatible materials, light, air</td>
</tr>
<tr>
<td>Incompatibility with various</td>
<td>Reactive with oxidizing agents.</td>
</tr>
<tr>
<td>substances</td>
<td></td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special Remarks on Reactivity</td>
<td>Air and light sensitive.</td>
</tr>
<tr>
<td>Special Remarks on Corrosivity</td>
<td>It turns red on exposure to air</td>
</tr>
<tr>
<td>Polymerization</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

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 system/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.

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**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**

### DOT Classification

Not a DOT controlled material (United States).

### Identification

Not applicable.

### Special Provisions for Transport

Not applicable.

### DOT (Pictograms)

![No entry icon]

**Section 15. Other Regulatory Information and Pictograms**

### 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

### California Proposition 65

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Regulations

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WNHIS (Canada)</td>
<td>CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).</td>
</tr>
<tr>
<td>DSCL (EEC)</td>
<td>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.</td>
</tr>
<tr>
<td>Health Hazard</td>
<td>2</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>E</td>
</tr>
</tbody>
</table>

**National Fire Protection Association (U.S.A.)**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Specific hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

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### 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.**

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### Section 16. Other Information

<table>
<thead>
<tr>
<th><strong>MSDS Code</strong></th>
<th><strong>P0134</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>References</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Other Special Considerations</strong></td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Verified by Sonia Owen.  

**CALL (310) 516-8000**

**Notice to Reader**

*Continued on Next Page*
All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.