SAFETY DATA SHEET

Preparation Date: 8/3/2015
Revision Date: 8/3/2015
Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: D2499
Product Name: DIMIDIUM BROMIDE

Other means of identification

Synonyms: 2,7-Diamino-10-methyl-9-phenylphenanthridinium bromide
3,8-Diamino-5-methyl-6-phenylphenanthridinium bromide
Phenanthridinium 1553
Trypadine

CAS #: 518-67-2
RTECS #: SF7960500
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Drug.
Uses advised against: No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number
Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Specific target organ toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>(single exposure)</td>
<td></td>
</tr>
</tbody>
</table>

Label elements
**Hazard statements**

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves

**Precautionary Statements - Response**

Specific treatment (see • ? on this label)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**Precautionary Statements - Storage**

Store in a well-ventilated place. Keep container tightly closed
Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
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<td>Dimidium Bromide</td>
<td>518-67-2</td>
<td>100</td>
<td>*</td>
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### 4. FIRST AID MEASURES

**First aid measures**

**General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

**Product code:** D2499  **Product name:** DIMIDIUM BROMIDE
4. FIRST AID MEASURES

**Skin Contact:**
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

**Eye Contact:**
Flush eye with water for 15 minutes. Get medical attention.

**Inhalation:**
Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**
Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**
Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. May cause headache. May affect the liver (hepatotoxin).

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:**
Treat symptomatically

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media:**
Dry chemical. Carbon dioxide (CO2). Water, spray, mist, or foam.

**Unsuitable Extinguishing Media:**
Do not use a solid (straight) water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:**
Carbon oxides, Nitrogen oxides, Hydrogen bromide

**Specific hazards:**
May be combustible at high temperatures
Fire may produce irritating, corrosive and/or toxic gases

**Special Protective Actions for Firefighters**

**Specific Methods:**
No information available.

**Special Protective Equipment for Firefighters:**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Product code: D2499  Product name: DIMIDIUM BROMIDE  3 / 11
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Avoid breathing dust. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Use appropriate tools to put the spilled solid in a suitable waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours/dust. Do not ingest. Do not smoke. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities


Incompatible Materials: Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
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<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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Canada

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Australia and Mexico

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<td>518-67-2</td>
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<td>None</td>
</tr>
</tbody>
</table>

Product code: D2499 Product name: DIMIDIUM BROMIDE
Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. 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.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Safety glasses with side-shields
Skin and body protection: Chemical resistant apron. Long sleeved clothing. Gloves.
Respiratory protection: Wear respirator with dust filter. Be sure to use an approved/certified respirator or equivalent.
Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid.

Odor: Odorless.
Taste: No information available

Formula: C20H18N3Br
Molecular/Formula weight: 380.31 g/mol

Flammability: No information available
Flash point (°C): No data available

Flashpoint (°C/°F): No information available.
Flash Point Tested according to: Not available
Autoignition Temperature (°C/°F): No information available

Lower Explosion Limit (%): No information available
Upper Explosion Limit (%): No information available

Melting point/range(°C/°F): 242-248°C/ 468-478°F
Boiling point/range(°C/°F): No information available

Decomposition temperature(°C/°F): No information available
Density (g/cm3): No information available
Specific gravity: No information available

Vapor pressure @ 20°C (kPa): No information available
Evaporation rate: No information available
Vapor density: No information available

VOC content (g/L): No information available
Odor threshold (ppm): No information available
Partition coefficient (n-octanol/water): No information available

Viscosity: No information available
Miscibility: No information available
Solubility: Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity
Reactive with oxidizing agents

Product code: D2499
Product name: DIMIDIUM BROMIDE
**Chemical stability**

**Stability:** Stable under recommended storage conditions

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:** Oxidizing agents.

**Hazardous decomposition products:** Carbon oxides. Nitrogen oxides (NOx). Hydrogen Bromide.

**Other Information**

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

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### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Principal Routes of Exposure:**
Ingestion. Inhalation. Skin. Eyes.

**Acute Toxicity**

**Component Information**

*Drimium Bromide - 518-67-2*

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<thead>
<tr>
<th>Route</th>
<th>Value</th>
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<td>LD50/oral/rat</td>
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<td>LD50/oral/mouse</td>
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<td>LD50/dermal/rat</td>
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<td>LC50/inhalation/rat</td>
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<td>LC50/inhalation/mouse</td>
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<td></td>
<td>61 mg/kg subcutaneous LD50 mouse</td>
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**Product Information**

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<tr>
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<th>Value</th>
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<tbody>
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<td>VALUE- Acute Tox Oral</td>
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<td>LD50/oral/mouse</td>
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<tr>
<td>Value - Acute Tox Oral</td>
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<td>LC50/inhalation/rat</td>
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<tr>
<td>VALUE-Vapor</td>
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<tr>
<td>VALUE-Gas</td>
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<tr>
<td>VALUE-Dust/Mist</td>
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<tr>
<td>LC50/Inhalation/mouse</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Product code:** D2499  **Product name:** DIMIDIUM BROMIDE
VALUES: Vapor = No information available
VALUES: Gas = No information available
VALUES: Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation. May cause erythema (redness) and edema (raised skin).

Eye Contact: Causes serious eye irritation.

Inhalation: May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed. May cause headache, nausea, vomiting.

Aspiration hazard: No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity: Ingestion: Repeated oral dosing of large amounts may affect the liver (fatty liver degeneration).

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
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<td>Dimidium Bromide</td>
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<td>Not listed</td>
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<td>Not listed</td>
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</tbody>
</table>

Reproductive toxicity: No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure: Respiratory system.

STOT - repeated exposure: No information available

Target Organs: Liver.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

Product code: D2499  Product name: DIMIDIUM BROMIDE
13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal. Do not reuse container Dispose of as unused product.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Dimidium Bromide</td>
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<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: None
ERG No: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available

Product code: D2499  Product name: DIMIDIUM BROMIDE
14. TRANSPORT INFORMATION

MFAG: No information available
Maximum Quantity: No information available

RID
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Classification Code: No information available
Description: No information available

ICAQ
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

IATA
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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<td>Not present</td>
<td>Present</td>
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<td>Present 208-256-7</td>
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</table>

U.S. Regulations


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
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Product code: D2499  Product name: DIMIDIUM BROMIDE
U.S. TSCA

<table>
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<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
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<tr>
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Canada

WHMIS hazard class:
Non-controlled

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

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<th>Components</th>
<th>Canada (DSL)</th>
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EU Classification

R-phrase(s)
R36/37/38 - Irritating to eyes, respiratory system and skin.

S-phrase(s)
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 - Wear suitable protective clothing.
S36/39 - Wear suitable protective clothing and eye/face protection.

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<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xi - Irritant.

Product code: D2499  Product name: DIMIDIUM BROMIDE
16. OTHER INFORMATION

Disclaimer: All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) 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 SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. 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 SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet