SAFETY DATA SHEET

1. IDENTIFICATION

Product code: D1165
Product Name: DIHYDROERGOTAMINE MESYLATE, USP

Other means of identification
Synonyms:
- Dihydergot
- Dihydroergotamine mesilate
- 9,10-Dihydroergotamine mesylate
- Dihydroergotamine methanesulfonate
- Dihytamine
- DETMS
- DHE 45
- Ergotamine, 9,10-dihydro-, monomethanesulfonate (salt)

CAS #: 6190-39-2
RTECS #: KE7920000
CI#: Not available

Recommended use of the chemical and restrictions on use
Recommended use: No information available.
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)

Reproductive toxicity Category 1A

Label elements
Danger

Hazard statements
May damage fertility or the unborn child
May cause harm to breast-fed children

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Avoid contact during pregnancy/while nursing
Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dihydroergotamine Mesylate</td>
<td>6190-39-2</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

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).

Skin Contact:
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. Consult a physician if necessary.

Eye Contact:
Flush eye with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.
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. Obtain medical attention.

Most important symptoms and effects, both acute and delayed
Symptoms May cause eye irritation. May cause skin irritation. May damage fertility or the unborn child. May cause harm to breast-fed children.

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. Foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical
Hazardous Combustion Products: Carbon oxides; Nitrogen oxides; Sulfur oxides
Specific hazards: May be combustible at high temperatures When heated to decomposition it emits toxic fumes

Special Protective Actions for Firefighters
Specific Methods: Cool closed containers with flooding quantities of water until fire is out.

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
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 breathing dust. Avoid dust formation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition. All equipment used when handling the product must be grounded.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

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. All equipment used when handling the product must be grounded. Avoid dust formation. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. 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: Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

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

<table>
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<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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</tbody>
</table>

Australia and Mexico

Product code: D1165

DIHYDROERGOTAMINE MESYLATE, USP
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:** Long sleeved clothing. Chemical resistant apron. 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
### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
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<table>
<thead>
<tr>
<th>Odor:</th>
<th>Taste</th>
<th>Molecular/Formula weight:</th>
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</thead>
<tbody>
<tr>
<td>Faint.</td>
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<td>679.78</td>
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<table>
<thead>
<tr>
<th>Formula:</th>
<th>Flammability:</th>
<th>Flash point (°C):</th>
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<tbody>
<tr>
<td>C33H37N5O5-CH4O3S</td>
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<table>
<thead>
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<th>Autoignition Temperature (°C/°F):</th>
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<td>No information available</td>
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<tr>
<th>Lower Explosion Limit (%):</th>
<th>Upper Explosion Limit (%):</th>
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<th>Boiling point/range(°C/°F):</th>
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<td>230-235°C/ 446-455°F</td>
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<table>
<thead>
<tr>
<th>Decomposition temperature(°C/°F):</th>
<th>Density (g/cm³):</th>
<th>Specific gravity:</th>
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<table>
<thead>
<tr>
<th>Vapor pressure @ 20°C (kPa):</th>
<th>Evaporation rate:</th>
<th>Vapor density:</th>
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<table>
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<tr>
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<th>Odor threshold (ppm):</th>
<th>Partition coefficient (n-octanol/water):</th>
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<tbody>
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<table>
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<tr>
<th>Viscosity:</th>
<th>Miscibility:</th>
<th>Solubility:</th>
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<tbody>
<tr>
<td>No information available</td>
<td>No information available</td>
<td>Very slightly soluble in cold water Very slightly soluble in Methanol</td>
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<table>
<thead>
<tr>
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<th>Autoignition Temperature (°C/°F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**
- Reactive with strong oxidizing agents

**Chemical stability**
- **Stability:** Sensitive to light. Exposure to light accelerates decomposition. Stable under recommended storage conditions.

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

**Conditions to avoid:**

**Incompatible Materials:**
- Strong oxidizing agents.

**Hazardous decomposition products:**

**Other Information**
- **Corrosivity:** Non-corrosive in presence of glass.

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

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**
Principal Routes of Exposure:
Eyes. Inhalation.

Acute Toxicity

Component Information

*Dihydroergotamine Mesylate* - 6190-39-2

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>LD50/oral/rat</td>
<td>&gt; 2 g/kg Oral</td>
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<tr>
<td>LD50/oral/mouse</td>
<td>&gt; 2 g/kg</td>
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<tr>
<td>LD50/dermal/rat</td>
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</tr>
<tr>
<td>LD50/dermal/rabbit</td>
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</tr>
<tr>
<td>LC50/inhalation/rat</td>
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<tr>
<td>LC50/inhalation/mouse</td>
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</table>

Other LD50 or LC50 information = No information available

Product Information

<table>
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<th>Route</th>
<th>Value</th>
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</thead>
<tbody>
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<td>LD50/oral/rat</td>
<td>&gt; 2000mg/kg</td>
</tr>
<tr>
<td>LD50/oral/mouse</td>
<td>&gt; 2000mg/kg</td>
</tr>
<tr>
<td>LD50/dermal/rabbit</td>
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</tr>
<tr>
<td>LD50/dermal/rat</td>
<td>No information</td>
</tr>
<tr>
<td>LC50/inhalation/rat</td>
<td>No information</td>
</tr>
<tr>
<td>LC50/inhalation/mouse</td>
<td>No information</td>
</tr>
</tbody>
</table>

Symptoms

Skin Contact: May cause skin irritation.

Eye Contact: May cause eye irritation.

Inhalation
Ingestion
May cause irritation of respiratory tract.
Ingestion may cause nausea, vomiting, diarrhea.

Aspiration hazard
No information available

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

Chronic Toxicity
No information available

Product code: D1165
Product name: DIHYDROERGOTAMINE MESYLATE, USP
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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<tbody>
<tr>
<td>Dihydroergotamine Mesylate</td>
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<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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</tbody>
</table>

Reproductive toxicity: May damage fertility or the unborn child

Reproductive Effects: May cause harm to breastfed babies
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure: No information available
STOT - repeated exposure: No information available
Target Organs: Reproductive System.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility: No information available

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

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

Product code: D1165

Product name: DIHYDROERGOTAMINE MESYLATE, USP
### 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
- **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

**ICAO**
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available

**Product code:** D1165
**Product name:** DIHYDROERGOTAMINE MESYLATE, USP
14. TRANSPORT INFORMATION

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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</thead>
<tbody>
<tr>
<td>Dihydroergotamine Mesylate</td>
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<td>Not present</td>
<td>Not present</td>
<td>Not present</td>
<td>Not present</td>
<td>Present</td>
<td>Present 228-235-6</td>
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</tbody>
</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

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<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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<td>None</td>
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U.S. TSCA

<table>
<thead>
<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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<tbody>
<tr>
<td>Dihydroergotamine Mesylate</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
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Canada

WHMIS hazard class:
Non-controlled

Product code: D1165
Product name:
DIHYDROERGOTAMINE MESYLATE, USP
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

<table>
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<tr>
<th>Components</th>
<th>Canada (DSL)</th>
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<tbody>
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<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
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EU Classification

R-phrase(s)
not determined (not applicable)

S-phrase(s)
none

Components | Classification | Concentration Limits: | Safety Phrases |
-----------|----------------|-----------------------|----------------|
Dihydroergotamine Mesylate |                | No information        |                |

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
None.

16. OTHER INFORMATION

Product code: D1165
Product name: DIHYDROERGOTAMINE MESYLATE, USP
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