1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product code:</th>
<th>D2429</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name:</td>
<td>L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE</td>
</tr>
<tr>
<td>Chemical Name:</td>
<td>No information available</td>
</tr>
<tr>
<td>Synonyms:</td>
<td>Methyl L-DOPA Hydrochloride</td>
</tr>
<tr>
<td>Recommended use:</td>
<td>No information available.</td>
</tr>
<tr>
<td>CAS #:</td>
<td>1421-65-4</td>
</tr>
<tr>
<td>Formula:</td>
<td>C10-H13-N-O4.HCl</td>
</tr>
<tr>
<td>RTECS #:</td>
<td>Not available</td>
</tr>
<tr>
<td>CI#:</td>
<td>Not available</td>
</tr>
<tr>
<td>Supplier:</td>
<td>Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000</td>
</tr>
<tr>
<td>Emergency Telephone Number:</td>
<td>CHEMTREC: 1-800-424-9300</td>
</tr>
<tr>
<td>Contact Person:</td>
<td>Martin LaBenz (West Coast)</td>
</tr>
<tr>
<td>Contact Person:</td>
<td>Chris Terpak (East Coast)</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Health Hazard</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Fire Hazard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reactivity</td>
</tr>
</tbody>
</table>

EMERGENCY OVERVIEW

May cause skin and eye irritation. May cause irritation of respiratory tract.

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
</table>

OSHA Regulatory Status

This material is not considered hazardous by the OSHA Hazard Communication Standard (29 1910.1200)
2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Potential Health Effects:

Skin Contact:
May cause skin irritation.

Eye Contact:
May cause eye irritation.

Inhalation:
May cause irritation of respiratory tract.

Ingestion:
No toxicological or health effect information is available for Methyl-L-DOPA Hydrochloride. However, Methyl-L-DOPA can cause dry mouth, vomiting, diarrhea, constipation, chlolitis, and can affect behavior/central nervous system, the cardiovascular system, the urinary system, the blood, liver and pancreas and can cause allergic dermatitis or other hypersensitivity reactions.

Chronic Potential Health Effects:

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride 1421-65-4 (100)</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Target Organs: Central nervous system. Cardiovascular system.

Teratogenic Effects: No information available

Mutagenic Effects: No information available

Aggravated Medical Conditions: Hypersensitivity to material. Liver disease. Impaired kidney function.

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride 1421-65-4 (100)</td>
<td>1421-65-4</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General Advice:
Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Product code: D2429

Product name: L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops.

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 breathing is difficult, give oxygen. In case of shortness of breath, 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.

Notes to Physician: Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashpoint (°C/°F)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Tested according to</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Explosion Limit (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper Explosion Limit (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition Temperature (°C/°F)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

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

Unsuitable Extinguishing Media: No information available.

Hazardous Combustion Products: Carbon monoxide; Carbon dioxide; Nitrogen oxides; hydrogen chloride gas

Specific hazards: May be combustible at high temperatures.

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

Specific Methods: No information available.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

Environmental Precautions:
No information available.

Methods for Cleaning Up:
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Clean contaminated surface thoroughly.

Product code: D2429
Product name: L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
7. HANDLING AND STORAGE

Handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. All equipment used when handling the product must be grounded. Keep away from incompatible materials.

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

Storage

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Deep freeze. Store at -20 °C. Store away from incompatible materials.

Incompatible Products:
Oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

Personal Protective Equipment

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

National occupational exposure limits

United States
U.S Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride - 1421-65-4</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Canada
Canada Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride 1421-65-4</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Product code: D2429
Product name: L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
Australia and Mexico
Occupational Exposure Limits for Australia and Mexico: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride (1421-65-4)</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:** Solid.

**Odor:** No information available

**Flash point (°C):** Not applicable

**Autoignition Temperature (°C/°F):** No information available

**Melting point/range (°C/°F):** 163-175 °C/325.4-347 °F

**Density (g/cm³):** 1.322

**Vapor density:** No information available

**Odor threshold (ppm):** No information available

**Solubility:**
Soluble in Water
Solubility in Water: 10%

**Appearance:** Powder.

**Taste:** No information available

**Lower Explosion Limit (%):** Not applicable

**Decomposition temperature (°C/°F):** No information available

**Bulk density:** No information available

**Evaporation rate:** No information available

**Partition coefficient (n-octanol/water):** No information available

**Odor threshold (ppm):** No information available

**Color:** White. Off-white.

**Molecular/Formula weight:** 247.68

**pH:** No information available

**Specific gravity:** No information available

**Boiling point/range (°C/°F):** 384.4 °C/723.92 °F

**Vapor pressure @ 20°C (kPa):** No information available

**VOC content (g/L):** No information available

**Miscibility:** No information available

10. STABILITY AND REACTIVITY

**Stability:** Stable at normal conditions

**Conditions to avoid:** Heat. Avoid dust formation. Dust may form explosive mixture in air. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Incompatible materials.

**Materials to avoid:** Strong oxidising agents.


**Possibility of Hazardous Reactions:** No information available

**Polymerization:** Hazardous polymerisation does not occur

**Corrosivity:** No information available

Product code: D2429

Product name: L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
### 11. TOXICOLOGICAL INFORMATION

#### Acute Toxicity

**Component Information**

*L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride - 1421-65-4*

- **LD₅₀/oral/rat** = No information available
- **LD₅₀/oral/mouse** = No information available
- **LD₅₀/dermal/rabbit** = No information available
- **LD₅₀/dermal/rat** = No information available
- **LC₅₀/inhalation/rat** = No information available
- **LC₅₀/inhalation/mouse** = No information available
- **Other LD₅₀ or LC₅₀ information** = No information available

**Product Information**

- **LC₅₀/inhalation/rat** = No information available
- **LC₅₀/inhalation/mouse** = No information available
- **LD₅₀/dermal/rabbit** = No information available
- **LD₅₀/dermal/rat** = No information available
- **LD₅₀/oral/mouse** = No information available
- **LD₅₀/oral/rat** = No information available

**Local Effects**

- **Skin irritation:** May cause skin irritation.
- **Eye irritation:** Contact with eyes may cause irritation.
- **Inhalation:** May cause irritation of respiratory tract.
- **Ingestion:** No toxicological or health effect information is available for Methyl-L-DOPA Hydrochloride. However, acute ingeston of Methyl-L-DOPA can affect behavior/central nervous system (hallucinations, tremor, abnormal and uncontrollable twisting or turning movements of the arms and legs, drowsiness, sedation, coma), and cardiovascular system (bradycardia, hypotension, cardiac arrhythmia), and can cause dry mouth, vomiting, diarrhea, constipation, cholitis, and allergic dermatitis or other hypersensitivity reactions.
- **Sensitization:** No information available

**Chronic Toxicity**

**Chronic Toxicity**

Chronic or prolonged ingeston of Methyl-L-DOPA can cause diarrhea, cholitis, weight loss, dry mouth, and may also effect the central nervous system (see acute ingestion), the cardiovascular system (see acute ingestion), the liver, pancreas, kidneys, bladder, blood (changes in white cell count), and bone marrow.

**Carcinogenic effects:** Not considered carcinogenic

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**Product code:** D2429  
**Product name:** L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
Mutagenic Effects: No information available

Reproductive Effects: For Methyl-L-DOPA. May cause adverse reproductive effects.

Teratogenic Effects: No information available

Target Organs: Central nervous system. Cardiovascular system.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals: No information available

Ecotoxicity effects: No data available.

Aquatic toxicity: No information available

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

DOT

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

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available

Product code: D2429

Product name: L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: 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
Packing Group: No information available
Subsidiary Risk: 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
Packing Group: No information available
Subsidiary Risk: No information available
Description: No information available

IATA
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
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Product code: D2429
Product name: L-3,4-
DIHYDROXYPHENYLALANINE
METHYL ESTER HYDROCHLORIDE
Components | U.S. TSCA | Philippines | KOREA KECL | Japan ENCS | CHINA | Australia (AICS) | EINECS-No.
--- | --- | --- | --- | --- | --- | --- | ---
L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride | Not Listed | Not present | Not present | Not present | Not present | Not present | Not present

**U.S. Regulations**

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**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>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

**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>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**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>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-3,4-Dihydroxyphenylalanine Methyl Ester Hydrochloride</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Product code:** D2429  
**Product name:** L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE
EU Classification

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

**S -phrase(s)**  
none

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

**Indication of danger:**  
Not dangerous

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16. OTHER INFORMATION

The MSDS format complies with ANSI Z400.1-2004 standards.

**Preparation Date**  
15-Sep-2011

**Reason for revision:**  
Not applicable

**Prepared by:**  
Sonia Owen

**Literature reference:**  
No information available

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. The physical properties reported in this MSDS 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 MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

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**Product code:** D2429  
**Product name:** L-3,4-DIHYDROXYPHENYLALANINE METHYL ESTER HYDROCHLORIDE