SAFETY DATA SHEET

Product code: AM102
Product Name: AMANTADINE HYDROCHLORIDE, USP

Other means of identification
Synonyms: 1-Adamantanamine hydrochloride; 1-Adamantylamine hydrochloride; 1-Aminoadamantane hydrochloride; Adamantanamine hydrochloride; Adamantylamine hydrochloride
CAS #: 665-66-7
RTECS #: AU4375000
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)

<table>
<thead>
<tr>
<th>Acute toxicity - Oral</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive toxicity</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label elements
Warning

Hazard statements
Harmful if swallowed
Suspected of damaging fertility or the unborn child

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
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

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>
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<tbody>
<tr>
<td>Amantadine Hydrochloride</td>
<td>665-66-7</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.

Product code: AM102
Product name: AMANTADINE HYDROCHLORIDE, USP
**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**  
Harmful if swallowed. Suspected of damaging fertility or the unborn child.

**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

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### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

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

**Unsuitable Extinguishing Media:**  
No information available.

**Specific hazards arising from the chemical**

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

**Specific hazards:**  
May be combustible at high temperatures  
As with most organic solids, fire is possible at elevated temperatures  
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard

**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

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**Product code:** AM102  
**Product name:** AMANTADINE HYDROCHLORIDE, USP
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering 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 Sweep up and shovel into suitable containers for disposal. 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. Keep away from incompatible materials.

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

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions: Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials: No information available

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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<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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Australia and Mexico

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<tbody>
<tr>
<td>Amantadine Hydrochloride 665-66-7</td>
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<td>None</td>
</tr>
</tbody>
</table>

Product code: AM102

Product name: AMANTADINE HYDROCHLORIDE, 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 Safety glasses with side-shields
Skin and body protection: Chemical resistant apron. Gloves. Long sleeved clothing.
Respiratory protection: Effective dust mask 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical state: Solid. | Appearance: No information available | Color: No information available |
| Odor: No information available | Taste: No information available | Molecular/Formula weight: 187.71 |
| Formula: C10H17N•HCl | Flammability: May be combustible at high temperatures | Flash point (°C): No data available |
| Flashpoint (°C/°F): No information available. | Flash Point Tested according to: Not available | Lower Explosion Limit (%): No information available |
| Upper Explosion Limit (%): No information available | Autoignition Temperature (°C/°F): No information available | pH: No information available |
| Melting point/range(°C/°F): No information available | Boiling point/range(°C/°F): No information available | Decomposition temperature(°C/°F): No information available |
| Bulk density: No information available | Specific gravity: No information available | Vapor pressure @ 20°C (kPa): No information available |
| Density (g/cm3): 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: No information available |

10. STABILITY AND REACTIVITY

Reactivity: No information available

Product code: AM102
Product name: AMANTADINE HYDROCHLORIDE, USP
Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur


Incompatible Materials: No information available

Hazardous decomposition products: Carbon oxides. Nitrogen oxides (NOx).

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

Amantadine Hydrochloride - 665-66-7
LD50/oral/rat = 800 mg/kg Oral LD50 Rat
LD50/oral/mouse = 700 mg/kg Oral LD50 Mouse
LD50/dermal/rat = No information available
LD50/dermal/rabbit = 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

LD50/oral/rat =
VALUE- Acute Tox Oral = 800mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 700mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE-Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available
Symptoms

Skin Contact: May cause skin irritation

Eye Contact: May cause eye irritation

Inhalation

May cause respiratory tract irritation.

Ingestion

Harmful if swallowed. May cause nausea, constipation or diarrhea, dry mouth, and loss of appetite. May affect behavior/central nervous system, cardiovascular system, respiration, skin. Other symptoms may include: Skin rash, confusion, seizures, hallucinations, disorientation, depression, personality changes, agitation, somnolence, insomnia, dizziness, irritability, distractability, thinking abnormality, slurred speech, amnesia, difficulty sleeping, weakness, depression, fatigue, anxiety, headache, lightheadedness, euphoria, excitation, coma, increased pulse rate, hypotension or hypertension, difficulty breathing (dyspnea), visual disturbances, sensitivity to light, optic nerve palsy, swollen feet, corneal opacity, corneal edema, swelling of the eyes, loss of libido, urinary retention. The effects of Amantadine can be altered by alcohol, amphetamines, diet pills, asthma, and medicines, methylphenidate, nabilone, and pemoline. Anticholinergic drugs can increase the side effects of Amantadine.

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

Sensitization:

No information available

Mutagenic Effects:

No information available

Carcinogenic effects:

Not considered carcinogenic

<table>
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<tr>
<th>Components</th>
<th>ACGIH - Carcinogens</th>
<th>IARC</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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</table>

Reproductive toxicity

Suspected of damaging fertility or the unborn child

Reproductive Effects:

No information available

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: No information available

Product code: AM102  Product name: AMANTADINE HYDROCHLORIDE, USP
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 regulations.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

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</tr>
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<tbody>
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</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

Product code: AM102
Product name: AMANTADINE HYDROCHLORIDE, USP
14. TRANSPORT INFORMATION

**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
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available
- **Classification Code:** 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
- **Classification Code:** 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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<tbody>
<tr>
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<td>Present</td>
<td>Not present</td>
<td>Not present</td>
<td>Present</td>
<td>Present 211-560-2</td>
</tr>
</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:
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (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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<td>developmental toxicity</td>
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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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<tbody>
<tr>
<td>Amantadine Hydrochloride</td>
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</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>Amantadine 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>
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<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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<table>
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<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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<tbody>
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<td>Amantadine Hydrochloride</td>
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</table>

EU Classification

R-phrase(s)
R22 - Harmful if swallowed.

S-phrase(s)
S2 - Keep out of the reach of children.
S46 - If swallowed, seek medical advice immediately and show this container or label.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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<tbody>
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<td>Amantadine Hydrochloride</td>
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<td>No information</td>
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</table>

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

Product code: AM102
Product name: AMANTADINE HYDROCHLORIDE, USP
Indication of danger: None.

16. OTHER INFORMATION

Revision Date: 06/26/2015
Prepared by: Sonia Owen

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