SAFETY DATA SHEET

Preparation Date: 05/20/2015  Revision Date: 05/25/2017  Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: AS115
Product Name: L-ASPARAGINE, MONOHYDRATE

Other means of identification
Synonyms:
(-)-Asparagine, monohydrate
(S)-2,4-Diamino-4-oxobutanoic acid, monohydrate
(S)-Asparagine, monohydrate
2-Aminosuccinic acid, L-, monohydrate
Asparagine acid, monohydrate
Aspartic acid, monohydrate
Aspartic acid beta-amide
Butanoic acid, 2,4-diamino-4-oxo-, (S)-, monohydrate
L-2,4-Diamino-4-oxobutanoic acid, monohydrate
L-Asparatamine, monohydrate
alpha-Aminosuccinic acid, monohydrate

CAS #: 5794-13-8
RTECS #: Not available
CI#: Not available

Recommended use of the chemical and restrictions on use
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 not 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)

Label elements

Not classified

Product code: AS115  Product name: L-ASPARAGINE, MONOHYDRATE
Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
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</thead>
<tbody>
<tr>
<td>L-Asparagine, Monohydrate</td>
<td>5794-13-8</td>
<td>100</td>
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</table>

### 4. FIRST AID MEASURES

**First aid measures**

**General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

**Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops. If symptoms persist, call a physician.

**Eye Contact:** Flush eyes 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. Consult a physician if necessary.

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

**Symptoms** May cause skin irritation. May cause eye irritation.

**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 powder. Carbon dioxide (CO2). Water spray. Foam.

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

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:** Carbon Dioxide, Carbon Monoxide. Nitrogen Oxides.

Product code: AS115  Product name: L-ASPARAGINE, MONOHYDRATE
Specific hazards: May be combustible at high temperatures.

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

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. Evacuate personnel to safe areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter 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: 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. All equipment used when handling the product must be grounded. Keep away from incompatible materials. Remove all sources of ignition.

Safe Handling Advice: Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe dust. 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>
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<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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Product code: AS115  Product name: L-ASPARAGINE, MONOHYDRATE
Monohydrate

Canada

<table>
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<th>Components</th>
<th>CAS-No.</th>
<th>Canada - Alberta</th>
<th>Canada - British Columbia</th>
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<th>Canada - Quebec</th>
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<td>L-Asparagine, Monohydrate</td>
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Australia and Mexico

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<th>Mexico</th>
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</thead>
<tbody>
<tr>
<td>L-Asparagine, Monohydrate</td>
<td>5794-13-8</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure:

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 or Goggles

Skin and body protection: Long sleeved clothing

apron

Gloves

Respiratory protection: Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds), inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. 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

|-----------------|-----------|-----------------|------------------------------------------|

Color: White.

Odor: No information available.

Taste: No information available.

Formula: C4H8N2O3-H2O

Flammability: No information available.

Flashpoint (°C/°F): No information available.

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

Lower Explosion Limit (%): No information available.

Upper Explosion Limit (%):

Product code: AS115

Product name: L-ASPARAGINE, MONOHYDRATE
10. STABILITY AND REACTIVITY

Reactivity
May react with strong oxidizers

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:
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:
None.

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Component</th>
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<tbody>
<tr>
<td>L-Asparagine, Monohydrate</td>
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</tbody>
</table>

Product code: AS115
Product name: L-ASPARAGINE, MONOHYDRATE
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

LD50/oral/rat = VALUE- Acute Tox Oral = No information available
LD50/oral/mouse = Value - Acute Tox Oral = No information available
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
LC50/Inhalation/mouse 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 May cause digestive (gastointestinal) tract irritation.
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>CAS-No.</th>
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<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
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Product code: AS115
Product name: L-ASPARAGINE, MONOHYDRATE
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: No information available.
STOT - repeated exposure: No information available.
Target Organs: No information available.

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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</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Class: No information available
Packing group: No information available
Emergency Response Guide: No information available

Product code: AS115 Product name: L-ASPARAGINE, MONOHYDRATE
<table>
<thead>
<tr>
<th>15. REGULATORY INFORMATION</th>
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**International Inventories**

<table>
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<tr>
<th>Product code: AS115</th>
<th>Product name: L-ASPARAGINE, MONOHYDRATE</th>
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Components | CAS-No. | U.S. TSCA | KOREA KECL | Philippines (PICCS) | Japan ENCS (2)-2383 | CHINA | Australia (AICS) | EINECS-No.  
--- | --- | --- | --- | --- | --- | --- | --- | ---  
L-Asparagine, Monohydrate | 5794-13-8 | Not Listed | Not present | Present | Present | Present | 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>CAS-No.</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>
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<th>Components</th>
<th>CAS-No.</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>L-Asparagine, Monohydrate</td>
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**U.S. TSCA**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</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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<td>L-Asparagine, Monohydrate</td>
<td>5794-13-8</td>
<td>Not Applicable</td>
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</table>

**Canada**

**WHIMIS 2015 - GHS Classifications**

WHIMIS 2015 Hazard Classification Information:  
Not a dangerous product according to HPR classification criteria.

**Canada Hazardous Products Regulation**  
This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**WHIMIS 1988 Hazard Class**  
Non-controlled

**Components**  
L-Asparagine, Monohydrate

**WHIMIS 1988**  
Uncontrolled product according to WHIMIS classification criteria

**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**

**Product code:** AS115  
**Product name:** L-ASPARAGINE, MONOHYDRATE
<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Canada (DSL)</th>
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### Components

<table>
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<tr>
<th>CAS-No.</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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#### EU Classification

**EU GHS - SV - CLP 172/2008**

<table>
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<th>CAS-No.</th>
<th>EU GHS - SV - CLP (172/2008)</th>
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<tbody>
<tr>
<td>L-Asparagine, Monohydrate</td>
<td>5794-13-8</td>
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#### R-phrase(s)

not determined (not applicable)

#### S -phrase(s)

none

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<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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</table>

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

#### Indication of danger:

None.

### 16. OTHER INFORMATION

| Preparation Date: | 05/20/2015 |
| Revision Date:    | 05/25/2017 |
| 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**

**Product code:** AS115  
**Product name:** L-ASPARAGINE, MONOHYDRATE