# SAFETY DATA SHEET

## 1. Identification

**Product identifier** **L-Threonine**

**Other means of identification**

**Catalog number** 1667202

**Chemical name** L-Threonine

**Synonym(s)** Threonine

**Recommended use** Specified quality tests and assay use only.

**Recommended restrictions** Not for use as a drug. Not for administration to humans or animals.

**Manufacturer/Importer/Supplier/Distributor information**

**Company name** U. S. Pharmacopeia

**Address** 12601 Twinbrook Parkway
Rockville
MD
20852-1790
US

**Telephone** RS Technical Services 301-816-8129

**Website** www.usp.org

**E-mail** RSTECH@usp.org

**Emergency phone number** CHEMTREC within US & Canada 1-800-424-9300
CHEMTREC outside US & Canada +1 703-527-3887

## 2. Hazard(s) identification

**Note** This product is supplied in a small quantity which does not constitute a combustible dust hazard. The physical properties of this material indicate that in large quantities accumulated dust may be hazardous.

**Physical hazards** Not classified.

**Health hazards** Not classified.

**OSHA hazard(s)** Not classified.

**Label elements**

**Hazard symbol** No symbol.

**Signal word** Not available.

**Hazard statement** Not available.

**Precautionary statement**

**Prevention** Not available.

**Response** Not available.

**Storage** Not available.

**Disposal** Not available.

**Hazard(s) not otherwise classified (HNOC)** Not classified.

## 3. Composition/information on ingredients

**Substance**

**Hazardous components**

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| L-Threonine | Threonine | 72-19-5 | 100 |

## 4. First-aid measures

**Inhalation** If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

**Skin contact** Rinse skin with water/shower. Get medical attention if irritation develops and persists.

**Eye contact** Rinse with water. Get medical attention if irritation develops and persists.

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| **Ingestion** | Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately. |
| **Most important symptoms/effects, acute and delayed** | Not available. |
| **Indication of immediate medical attention and special treatment needed** | Treat symptomatically. |
| **General information** | Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention. |

## 5. Fire-fighting measures

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| **Suitable extinguishing media** | Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials. |
| **Unsuitable extinguishing media** | None known. |
| **Specific hazards arising from the chemical** | Not applicable. |
| **Special protective equipment and precautions for firefighters** | Wear suitable protective equipment. |
| **Fire-fighting equipment/instructions** | As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing. |
| **Specific methods** | Cool containers exposed to flames with water until well after the fire is out. |

## 6. Accidental release measures

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| **Personal precautions, protective equipment and emergency procedures** | Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment. |
| **Methods and materials for containment and cleaning up** | Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Wash spill site. |

## 7. Handling and storage

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| **Precautions for safe handling** | As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. |
| **Conditions for safe storage, including any incompatibilities** | Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity. |

## 8. Exposure controls/personal protection

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| **Biological limit values** | No biological exposure limits noted for the ingredient(s). |
| **Exposure guidelines** | No exposure standards allocated. |
| **Appropriate engineering controls** | Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. |

**Individual protection measures, such as personal protective equipment**

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| **Eye/face protection** | Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area. |
| **Skin protection** | |
| **Hand protection** | Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy. |
| **Other** | For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination. |

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| **Respiratory protection** | Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134). |
| **Thermal hazards** | Not available. |
| **General hygiene considerations** | Handle in accordance with good industrial hygiene and safety practice. |

## 9. Physical and chemical properties

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| **Appearance** | Colorless crystals or white crystalline powder. |
| **Physical state** | Solid. |
| **Form** | Powder. |
| **Odor** | Odorless. |
| **Odor threshold** | Not available. |
| **pH** | 5 - 6 in 50 g/l at 20 °C |
| **Melting point/freezing point** | 491 - 494.6 °F (255 - 257 °C) (decomposes) |
| **Initial boiling point and boiling range** | Not available. |
| **Flash point** | Not available. |
| **Evaporation rate** | Not available. |
| **Flammability (solid, gas)** | Not applicable. |
| **Upper/lower flammability or explosive limits** | |
| **Flammability limit - lower (%)** | Not available. |
| **Flammability limit - upper (%)** | Not available. |
| **Explosive limit - lower (%)** | Not available. |
| **Explosive limit - upper (%)** | Not available. |
| **Vapor pressure** | < 0.0000001 kPa at 25 °C |
| **Vapor density** | Not available. |
| **Relative density** | Not available. |
| **Solubility in water** | Freely soluble. |
| **Partition coefficient (n-octanol/water)** | -2.94 |
| **Auto-ignition temperature** | 698 °F (370 °C) |
| **Decomposition temperature** | Not available. |
| **Viscosity** | Not available. |
| **Other information** | |
| **Chemical family** | Alpha Amino acid. |
| **Dust explosion properties** | |
| **Minimum ignition energy (MIE) - dust cloud** | 100 - 300 mJ at 25 °C |
| **Molecular formula** | C4H9NO3 |
| **Molecular weight** | 119.12 |
| **Potential for dust explosion** | Susceptible to dust explosion. |
| **Solubility (other)** | Insoluble in ethanol, in ethyl ether, and in chloroform. |

## 10. Stability and reactivity

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| **Reactivity** | No reactivity hazards known. |
| **Chemical stability** | Material is stable under normal conditions. |
| **Possibility of hazardous reactions** | No dangerous reaction known under conditions of normal use. |
| **Conditions to avoid** | None known. |
| **Incompatible materials** | Strong oxidizing agents. |
| **Hazardous decomposition products** | NOx. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions. |

## 11. Toxicological information

**Information on likely routes of exposure**

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|---|---|
| **Ingestion** | Based on available data, the classification criteria are not met. |
| **Inhalation** | Due to lack of data the classification is not possible. |
| **Skin contact** | Due to lack of data the classification is not possible. |
| **Eye contact** | Based on available data, the classification criteria are not met. |
| **Symptoms related to the physical, chemical, and toxicological characteristics** | Not available. |
| **Acute toxicity** | Based on available data, the classification criteria are not met. |

| Product | Species | Test Results |
|---|---|---|
| L-Threonine (CAS 72-19-5) | | |
| *Inhalation* | | |
| LC50 | Rat | 5.15 mg/l/4h |
| *Oral* | | |
| LD50 | Rat | > 5000 mg/kg |

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|---|---|
| **Skin corrosion/irritation** | Based on available data, the classification criteria are not met. |
| **Serious eye damage/eye irritation** | Based on available data, the classification criteria are not met. |

**Local effects**

Irritancy test
Result: Negative.
Species: Rabbit
Organ: Eye.
Irritancy test
Result: Negative.
Species: Rabbit
Organ: Skin.

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| **Respiratory sensitization** | Due to lack of data the classification is not possible. |
| **Skin sensitization** | Based on available data, the classification criteria are not met. |

**Sensitization**

Magnusson & Kligman sensitization test
Result: Negative.
Species: Guinea pig
Organ: Skin.

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| **Germ cell mutagenicity** | Due to lack of data the classification is not possible. |

**Mutagenicity**

In vitro chromosomal aberration in human lymphocytes
Result: Negative.
S. typhimurium Ames assay
Result: Negative.

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| **Carcinogenicity** | Due to lack of data the classification is not possible. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. |
| **Reproductive toxicity** | Due to lack of data the classification is not possible. |
| **Specific target organ toxicity - single exposure** | Due to lack of data the classification is not possible. |
| **Specific target organ toxicity - repeated exposure** | Due to lack of data the classification is not possible. |
| **Aspiration hazard** | Based on available data, the classification criteria are not met. |

## 12. Ecological information

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| **Ecotoxicity** | No ecotoxicity data noted for the ingredient(s). |
| **Persistence and degradability** | No data is available on the degradability of this product. |
| **Bioaccumulative potential** | Not available. |
| **Mobility in soil** | Not available. |
| **Other adverse effects** | Not available. |

## 13. Disposal considerations

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| **Disposal instructions** | This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations. |
| **Local disposal regulations** | Not available. |
| **Hazardous waste code** | Not regulated. |
| **Waste from residues / unused products** | Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| **Contaminated packaging** | Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

## 14. Transport information

**DOT**

Not regulated as a hazardous material by DOT.

**IATA**

Not regulated as a dangerous good.

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| **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** | No information available. |

## 15. Regulatory information

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| **US federal regulations** | CERCLA/SARA Hazardous Substances - Not applicable.<br><br>All components are on the U.S. EPA TSCA Inventory List. |

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

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|---|---|
| **Hazard categories** | Immediate Hazard - No<br>Delayed Hazard - No<br>Fire Hazard - Yes<br>Pressure Hazard - No<br>Reactivity Hazard - No |
| **SARA 302 Extremely hazardous substance** | No |
| **SARA 311/312 Hazardous chemical** | No |

**Other federal regulations**

| | |
|---|---|
| **Safe Drinking Water Act (SDWA)** | Not regulated. |
| **Food and Drug Administration (FDA)** | Not regulated. |
| **US state regulations** | This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. |

**International Inventories**

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## 16. Other information, including date of preparation or last revision

| | |
|---|---|
| **Issue date** | 01-21-2003 |
| **Revision date** | 07-16-2013 |
| **Version #** | 03 |
| **Further information** | Not available. |
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| **Revision Information** | Physical & Chemical Properties: Multiple Properties<br>Toxicological Information: Toxicological Data |