

Material Safety Data Sheet

Conforms to 93/112/EC and ISO 11014-1

Responsible Name Pierce Administrator

? Section 1. Chemical Product and Company Identification**Product Name** L-Arginine Hydrochloride**Product no.** 99989 89990 1860970 1892637 1892638**Supplier** In USA:
Thermo Fisher Scientific
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or
1.800.874.3723In Europe:
Perbio Science
Industriezone III
Industrielaan 27
9320 Erembodegem-Aalst
Belgium
Tel: +32 53 83 44 04
Fax: +32 53 83 76 38**Manufacturer** Pierce
3747 N. Meridian Road
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or
1.800.874.3723
(815)968-7316 fax
www.thermo.com**In case of emergency** CHEMTREC:
800.424.9300
OUTSIDE US:
703.527.3887**Print date** 4/11/2007**Validation date** 4/11/2007**MSDS#** 7621**Synonyms** L-(+)-Arginine Monohydrochloride; ¹³C₆¹⁵N₄ L-Arginine HCl**Use of the substance/preparation** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.**Section 2. Composition, Information on Ingredients****Substance/preparation** : Substance

Ingredient name	CAS number	%	EC number	Classification
L-Arginine Hydrochloride	1119-34-2	98 - 100	214-275-1	Xi; R37

Section 3. Hazards identification**United States** Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.**Emergency overview** Caution!

MAY CAUSE RESPIRATORY TRACT IRRITATION.

Avoid breathing dust. Keep container closed. Use only with adequate ventilation.

Routes of entry Eye contact. Inhalation. Ingestion.**Potential acute health effects****Eyes** No known significant effects or critical hazards.**Skin** No known significant effects or critical hazards.**Inhalation** Moderately irritating to the respiratory system.**Ingestion** Practically non-toxic if swallowed.**Potential chronic health effects****Carcinogenic effects** **CARCINOGENIC EFFECTS:** Not available.**MUTAGENIC EFFECTS:** Not available.**TERATOGENIC EFFECTS:** Not available.**Medical conditions aggravated by overexposure** Repeated or prolonged exposure is not known to aggravate medical condition.**Over-exposure signs/symptoms** Not available.

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Europe**Classification** Xi; R37**Physical/chemical hazards** Not applicable.**Human health hazards** Irritating to respiratory system.**Environmental hazards** Not applicable.

See toxicological Information (section 11)

+ Section 4. First aid measures**Notice to reader** Get immediate medical attention.**Effects and symptoms****Inhalation** Hazardous in case of inhalation (lung irritant).**Ingestion** Not available.**Skin contact** Not available.**Eye contact** Not available.**Aggravating conditions** Repeated or prolonged exposure is not known to aggravate medical condition.**First-Aid measures****Inhalation** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.**Ingestion** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.**Skin contact** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.**Eye contact** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.**Notes to physician** Not available.**Protection of first-aiders** Not available.** Section 5. Fire fighting measures****Flammability of the product** May be combustible at high temperature.**Flash Points** Not available.**Fire hazards in presence of various substances** Not available.**Fire fighting media and instructions** Use an extinguishing agent suitable for surrounding fires.**Protective clothing (fire)** Be sure to use an approved/certified respirator or equivalent.**Hazardous thermal decomposition products** These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds, hydrogen chloride.**Section 6. Accidental release measures****Personal precautions** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.**Environmental precautions and clean-up methods** Use a shovel to put the material into a convenient waste disposal container.**Small spill and leak** Use appropriate tools to put the spilled solid in a convenient waste disposal container.**Continued on Next Page**

Section 7. Handling and storage

Handling Keep container closed. Use only with adequate ventilation. Avoid breathing dust.

Storage Keep container tightly closed. Keep container in a cool, well-ventilated area.

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Packaging materials

Suitable / Not suitable Use original container.

Section 8. Exposure Controls, Personal Protection

Engineering Controls 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.

Exposure Limit Values

Ingredient Name

Occupational Exposure Limits

United States

Personal Protection

Eyes Splash goggles.

Body Lab coat.

Hands Gloves.

Respiratory Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

Protective Clothing
(Pictograms)



Section 9. Physical and chemical properties

Physical State Solid. (Crystalline solid.)

Color White.

Odor Odorless.

Molecular weight 210.66 g/mole

Taste Not available.

Molecular formula $C_6H_{14}N^4O_2 \cdot HCl$

pH (1% Soln/Water) 4.7 to 6.2 (Conc. (% w/w): 2.5) [Acidic.]

Melting/freezing point 226 to 235°C (438.8 to 455°F)

Specific Gravity 1.42 (Water = 1)

Dispersion properties See solubility in water.

Solubility Soluble in cold water.
Partially soluble in hot water.
Very slightly soluble in methanol.

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Section 10. Stability and reactivity

- Stability and Reactivity** The product is stable.
- Conditions to avoid** Not available.
- Materials to avoid** Reactive with oxidizing agents.
- Hazardous polymerization** Will not occur.
- Hazardous Decomposition Products** These products are halogenated compounds, hydrogen chloride.



Section 11. Toxicological information

- Toxicity to Animals** **L-Arginine Hydrochloride:**
ORAL (LD50): Acute: 12000 mg/kg [Rat].
- Chronic Effects on Humans** Not available.
- Other Toxic Effects on Humans** Hazardous in case of inhalation (lung irritant).
- Special Remarks on Toxicity to Animals** Not available.
- Special Remarks on Chronic Effects on Humans** Not available.
- Special Remarks on Other Toxic Effects on Humans** Not available.
- Carcinogenicity** No known significant effects or critical hazards.
- Mutagenicity** No known significant effects or critical hazards.
- Reproductive toxicity** No known significant effects or critical hazards.
- Over-exposure signs/symptoms**
- Inhalation** No known significant effects or critical hazards.
- Ingestion** No known significant effects or critical hazards.
- Skin** No known significant effects or critical hazards.



Section 12. Ecological information

- Mobility** Not available.
- Persistence/degradability** Not available.
- Bioaccumulative potential** Not available.
- Ecotoxicity** Not available.
- Germany water class** VCI WGK: No products were found.

Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>
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Other ecological information

<u>Ingredient name</u>	<u>BOD₅</u>	<u>COD</u>
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<u>Ingredient name</u>	<u>Aquatic half-life</u>	<u>Photolysis</u>
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Bioaccumulative potential

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Ingredient name

LogP_{ow}

BCF

- Mobility : Not available.
- Other adverse effects : No known significant effects or critical hazards.



Section 13. Disposal considerations

Waste Stream Not available.

Methods of disposal The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

European waste catalogue (EWC) Not available.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste

Denmark – Carcinogenic waste Not available.

Denmark - Waste card number Not available.

Denmark - Waste group Not available.

Sweden - thermoset plastic waste Not available.

Sweden - Waste group Not available.

Austria - Waste catalogue Not available.

Norway - Waste number Not available.

Norway - Hazardous waste The classification of the product may meet the criteria for a hazardous waste

Switzerland - Waste code Not available.

Section 14. Transport information

Contact the supplier for all information regarding the proper transportation method for this material.



Section 15. Regulatory information

Label Requirements (Europe)

R37- Irritating to respiratory system.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39- Wear suitable gloves and eye/face protection.



Irritant

HCS Classification Irritating material

L-Arginine Hydrochloride

U.S. Federal Regulations TSCA 8(b) inventory: L-Arginine Hydrochloride

- SARA 302/304/311/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/311/312 hazardous chemicals: No products were found.
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: No products were found.
- Clean air act (CAA) 112 accidental release prevention: No products were found.
- Clean air act (CAA) 112 regulated flammable substances: No products were found.
- Clean air act (CAA) 112 regulated toxic substances: No products were found.

State regulations No products were found.

WHMIS (Canada) Not controlled under WHMIS (Canada).

CEPA DSL: L-Arginine Hydrochloride

International Regulations

EINECS Not available.

DSCL (EEC) R37- Irritating to respiratory system.

International Lists No products were found.

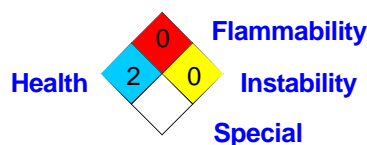
State Regulations No products were found.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	0
Fire hazard	0
Reactivity	0
Personal protection	C

National Fire Protection Association (U.S.A.)



References Not available.

History of Document Changes Any information changes since last document version are marked with a triangle symbol. 

Full text of R phrases referred to in sections 2 and 3 - Europe R37- Irritating to respiratory system.

Full text of classifications referred to in sections 2 and 3 - Europe Xi - Irritant

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

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Verified by Pierce Administrator.

Date of previous issue

4/9/2007

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Version

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.