

9/10/07



SIGMA-ALDRICH

### Material Safety Data Sheet

Date Printed: 08/16/2007  
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Version 1.50

#### Section 1 - Product and Company Information

<b>Product Name</b>	L-Leucine	
<b>Product Number</b>	L8000	
<b>Brand</b>	Sigma Chemical	
<b>Company</b>	Sigma-Aldrich	
<b>Street Address</b>	3050 Spruce Street	
<b>City, State, Zip, Country</b>	SAINT LOUIS, MO 63103 US	
<b>Technical Phone:</b>	800-325-5832	<b>Emergency Phone:</b> 314-776-6555
<b>Fax:</b>	800-325-5052	

#### Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
L(+)-LEUCINE	61-90-5	No	200-522-0	
<b>Formula</b>	C6H13NO2			
<b>Synonyms</b>	alpha-Aminoisocaproic acid, L-alpha-Aminoisocaproic acid, 2-Amino-4-methylpentanoic acid, (S)-2-Amino-4-methylpentanoic acid, alpha-Amino-gamma-methylvaleric acid, (S)-2-Amino-4-methylvaleric acid, Leu, Leucin (German), Leucine, L-(+)-Leucine, (S)-Leucine, Norvaline, 4-methyl-L-Norvaline, 4-methyl-, Pentanoic acid, 2-amino-4-methyl-, (S)-, Valeric acid, 2-amino-4-methyl-			

#### Section 3 - Hazards Identification

**HMIS Rating**  
Health: 0      Flammability: 0      Reactivity: 0

**NFPA Rating**  
Health: 0      Flammability: 0      Reactivity: 0

For additional information on toxicity, please refer to Section 11.

#### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

**Inhalation Exposure**  
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

**Dermal Exposure**  
In case of contact, immediately wash skin with soap and copious amounts of water.

**Eye Exposure**  
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### Section 5 - Fire Fighting Measures

**Autoignition Temp:** N/A

**Extinguishing Media**  
**Suitable**  
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

**Firefighting**  
**Protective Equipment**  
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Specific Hazard(s)**  
Emits toxic fumes under fire conditions.

#### Section 6 - Accidental Release Measures

**Procedure(s) of Personal Precaution(s)**  
Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

**Methods for Cleaning Up**  
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

#### Section 7 - Handling and Storage

**Handling**  
**User Exposure**  
Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

**Storage**  
**Suitable**  
Keep tightly closed.

#### Section 8 - Exposure Controls / PPE

**Engineering Controls**  
Safety shower and eye bath. Mechanical exhaust required.

**Personal Protective Equipment**  
**Respiratory**  
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

**Hand**  
Protective gloves.

**Eye**  
Chemical safety goggles.

**General Hygiene Measures**  
Wash thoroughly after handling.

#### Section 9 - Physical/Chemical Properties

**Appearance**  
**Physical State**  
Solid

71-1-79-26904F11.DS

Molecular Weight: 131.18 AMU

pH N/A  
BP/BP Range N/A  
MP/MP Range 300 °C  
Freezing Point N/A  
Vapor Pressure N/A  
Vapor Density N/A  
Saturated Vapor Conc. N/A  
SG/Density N/A  
Bulk Density N/A  
Odor Threshold N/A  
Volatile% N/A  
VOC Content N/A  
Water Content N/A  
Solvent Content N/A  
Evaporation Rate N/A  
Viscosity N/A  
Partition Coefficient N/A  
Decomposition Temp. N/A  
Flash Point °F N/A  
Flash Point °C N/A

Explosion Limits N/A

Flammability N/A

Autoignition Temp N/A

Optical Rotation Degree of Rotation:  
+19.0 - +15.5 (+/-0.5)

Solvent: 5 M HCl/50 g/l

Solubility  
Solvent: 0.1M HCl 1M, 20°C, complete, colorless

N/A = not available

## Section 10 - Stability and Reactivity

Stability  
Stable  
Stable.  
Materials to Avoid  
Strong oxidizing agents.

Hazardous Decomposition Products  
Hazardous Decomposition Products  
Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Hazardous Polymerization  
Hazardous Polymerization  
Will not occur.

## Section 11 - Toxicological Information

Route of Exposure  
Skin Contact  
May cause skin irritation.  
Skin Absorption  
May be harmful if absorbed through the skin.  
Eye Contact  
May cause eye irritation.  
Inhalation  
May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion  
May be harmful if swallowed.

**Signs and Symptoms of Exposure**  
The levorotary (l) forms of leucine, isoleucine, and valine have been found to have tumor-promoting activity for bladder carcinomas. Science 231, 843, 21 February 1986. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: OH2850000

### Toxicity Data

Intraperitoneal - Rat: 5379 MG/KG (LD50)  
Remarks: Lungs, Thorax, or Respiration: Dyspnea.  
Nutritional and Gross Metabolic: Changes in: Body temperature decrease.

### Chronic Exposure - Teratogen

Species	Dose	Route of Application	Exposure Time
Rat	90 MG/KG	Intraperitoneal	(1-6D PREG)
Result: Specific Developmental Abnormalities: Body wail.			
Rat	90 MG/KG	Intraperitoneal	(1-6D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Craniofacial (including nose and tongue).			
Rat	60 MG/KG	Intraperitoneal	(6-9D PREG)
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Eye, ear. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).			
Rat	60 MG/KG	Intraperitoneal	(6-9D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Specific Developmental Abnormalities: Urogenital system.			

### Chronic Exposure - Mutagen

Species	Dose	Cell Type	Mutation test
Human	10 MG/L	lymphocyte	Sister chromatid exchange

### Chronic Exposure - Reproductive Hazard

Species	Dose	Route of Application	Exposure Time
Rat	138 GM/KG	Oral	(5-15D PREG)
Result: Effects on Fertility: Other measures of fertility Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rat	90 MG/KG	Intraperitoneal	(1-6D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Specific Developmental Abnormalities: Other developmental abnormalities.			

## Section 12 - Ecological Information

No data available.

## Section 13 - Disposal Considerations

**Appropriate Method of Disposal of Substance or Preparation**  
Contact a licensed professional waste disposal service to dispose of this material.  
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.  
Observe all federal, state, and local environmental regulations.

## Section 14 - Transport Information

DOT  
Proper Shipping Name: None  
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA  
Non-Hazardous for Air Transport: Non-hazardous for air transport.

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**Section 15 - Regulatory Information**

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**United States Regulatory Information**

SARA Listed: No

TSCA Inventory Item: Yes

**Canada Regulatory Information****WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.