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## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product identifiers

Product name : L-Glutamic acid  
CAS-No. : 56-86-0

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3 Details of the supplier

Company : Silver Fern Chemical, Inc  
2226 Queen Anne Ave N  
Seattle, WA 98109  
Phone: 866-282-3384  
Fax: 206-282-3376

### 1.4 Emergency telephone number

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT  
CONTACT: INFOTRAC 800-535-5053 within the United States and Canada,  
or 1-352-323-3500 for international collect calls.

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## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

### 2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms : Glu  
(S)-2-Aminopentanedioic acid

Formula : C<sub>5</sub>H<sub>9</sub>NO<sub>4</sub>  
Molecular Weight : 147.13 g/mol  
CAS-No. : 56-86-0  
EC-No. : 200-293-7

No ingredients are hazardous according to OSHA criteria.  
No components need to be disclosed according to the applicable regulations.

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## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**In case of skin contact**

Wash off with soap and plenty of water.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

no data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NO<sub>x</sub>)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing vapours, mist or gas.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

General industrial hygiene practice.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

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|--|---|
| a) Appearance                              | Form: crystalline                                     |
| b) Odour                                   | no data available                                     |
| c) Odour Threshold                         | no data available                                     |
| d) pH                                      | no data available                                     |
| e) Melting point/freezing point            | Melting point/range: 205 °C (401 °F) - dec.           |
| f) Initial boiling point and boiling range | no data available                                     |
| g) Flash point                             | no data available                                     |
| h) Evaporation rate                        | no data available                                     |
| i) Flammability (solid, gas)               | The product is not flammable. - Flammability (solids) |

- |   |   |
|---|---|
| j) Upper/lower flammability or explosive limits | no data available   |
| k) Vapour pressure                              | no data available   |
| l) Vapour density                               | no data available   |
| m) Relative density                             | 1.54 g/cm <sup>3</sup> at 20 °C (68 °F)   |
| n) Water solubility                             | 8.64 g/l at 25 °C (77 °F) - soluble   |
| o) Partition coefficient: n-octanol/water       | log Pow: < -4 at 20 °C (68 °F)  |
| p) Auto-ignition temperature                    | not auto-flammable  |
| q) Decomposition temperature                    | no data available   |
| r) Viscosity                                    | no data available   |
| s) Explosive properties                         | Not explosive   |
| t) Oxidizing properties                         | The product has been shown not to be oxidising in a test following Directive 67/548/EEC (Method A17, oxidising properties). |

## 9.2 Other safety information

Surface tension 74.2 mN/m at 20 °C (68 °F)

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - male and female - > 5,110 mg/kg

Inhalation: no data available

LD50 Dermal - rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 402)

no data available

#### Skin corrosion/irritation

Skin - rabbit

Result: No skin irritation - 4 h

(Directive 67/548/EEC, Annex V, B.4.)

**Serious eye damage/eye irritation**

Eyes - rabbit

Result: No eye irritation - 72 h  
(OECD Test Guideline 405)**Respiratory or skin sensitisation**

Maximisation Test - guinea pig

Result: Does not cause skin sensitisation.  
(Directive 67/548/EEC, Annex V, B.6.)**Germ cell mutagenicity**

no data available

Ames test

S. typhimurium

Result: negative

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**Toxicity to fish static test LC50 - Cyprinus carpio (Carp) - > 100 mg/l - 96 h  
(OECD Test Guideline 203)Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h  
(OECD Test Guideline 202)Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata (green algae) - > 31 mg/l - 72 h  
(OECD Test Guideline 201)**12.2 Persistence and degradability**Biodegradability aerobic - Exposure time 28 d  
Result: 97 % - Readily biodegradable.

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

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**15. REGULATORY INFORMATION**

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

No SARA Hazards

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Glutamic acid	56-86-0	

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Glutamic acid	56-86-0	

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION**

**HMIS Rating**

Health hazard: 0

Chronic Health Hazard:

Flammability:	0
Physical Hazard	0
<b>NFPA Rating</b>	
Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

**Disclaimer for responsibility:**

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.