

SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.0

Creation Date: July 15, 2019

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1. Identification

1.1 GHS Product identifier

Product name L-Aspartic acid

1.2 Other means of identification

Product number A10071

Other names

1.3 Recommended use of the chemical and restrictions on use

Identified uses Food additives -> Flavoring Agents

Uses advised against no data available

1.4 Supplier's details

Company Tianjin Psaitong Biomedical Technology Co., Ltd

Beijing Psaitong Biotechnology Co., Ltd

Address Building 145, Yougu New Science Park, Qingguang Town, Beichen District, Tianjin City

Tel/Fax +86-10-60605840

1.5 Emergency phone number

Emergency phone number +86-10-60605840

Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Not classified.

2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.

Signal word No signal word

Hazard statement(s) none

Precautionary statement(s)

Prevention none

Response none

Storage none

Disposal none

2.3 Other hazards which do not result in classification

no data available

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Aspartic acid	Aspartic acid	56-84-8	200-291-6	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink.

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Cover skin burns with dry sterile dressings after decontamination. Poisons A and B

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

In case of fire in the surroundings, use appropriate extinguishing media.

5.2 Specific hazards arising from the chemical

Combustible. Finely dispersed particles form explosive mixtures in air.

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance.

6.2 Environmental precautions

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. Handling and storage

7.1 Precautions for safe handling

NO open flames. Prevent build-up of electrostatic charges (e.g., by grounding). Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	Aspartic acid			
CAS No.	56-84-8			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Latvia		10		
	Remarks			

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	Solid.
Colour	White.
Odour	no data available
Melting point/ freezing point	230 °C.
Boiling point or initial boiling point and boiling range	> 324 °C.
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	no data available
Flash point	107°C(lit.)

Auto-ignition temperature	> 400 °C.
Decomposition temperature	324°C
pH	3.03. Remarks:Suspension at ambient temperature.
Kinematic viscosity	no data available
Solubility	In water: 2.09 g/kg. Temperature:0 °C. Remarks:Selected results from the solubility-temperature equation.;3.53 g/kg. Temperature:15 °C. Remarks:Selected results from the solubility-temperature equation.;4.2 g/kg. Temperature:20 °C. Remarks:Selected results from the solubility-temperature equation.
Partition coefficient n-octanol/water	log Pow = -3.89. Remarks:No further data are available.
Vapour pressure	0 Pa. Temperature:25 °C. Remarks:The result was obtained by the Modified Grain method.
Density and/or relative density	1.66. Temperature:13 °C.;1.661. Temperature:13 °C.
Relative vapour density	no data available
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

Decomposes on burning. This produces toxic gases including nitrogen oxides. Reacts violently with oxidants.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

11. Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 2 000 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rabbit - 5 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and respiratory tract.

STOT-repeated exposure

no data available

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 100 mg/L - 96 h.
 - Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 100 mg/L - 48 h.
 - Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 100 mg/L - 72 h.
 - Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 300 mg/L - 3 h.
- Remarks: Respiration rate.

12.2 Persistence and degradability

AEROBIC: The biodegradation of L-aspartic acid was measured in several BOD5 tests. After 5 days, 48.5%(1) 38.7(2) and 80.5%(3) of the theoretical BOD was reached using a sewage inoculum. L-Aspartic acid was degraded by 81% BODT after 30 days using a sewage inoculum(4). In a second Warburg test using an activated sludge inoculum, 8.9, 16.2, and 28.8% BODT was reached after 0.25, 0.5, and 1 day, respectively(5). DL-Aspartic acid was rapidly degraded by 98 to >99% in a laboratory-scale activated sludge unit at initial concentrations of 599, 1198, 2396, and 4792 mg/L and average detention times of 20.5, 29, 42, and 85 hours, respectively(6). Samples of marine water from the Scheldt estuary, the Belgian coastal zone of the North Sea, and the English Channel were incubated with ¹⁴C-labeled DL-aspartic acid and relative rates of total utilization (incorporation plus respiration) of 2.7, 1.5, and 0.10%/hr, respectively, were measured over a 4-hour period(7). Based on these data, L-aspartic acid is expected to biodegrade rapidly.

12.3 Bioaccumulative potential

An estimated BCF of 0.7 was calculated in fish for L-aspartic acid(SRC), using a water solubility of 5,360 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of L-aspartic acid is estimated as 39(SRC), using a water solubility of 5,360 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that L-aspartic acid is expected to have very high mobility in soil. However, L-aspartic acid has pKa values of 1.92, 3.87, and 9.87(5), indicating that this compound will exist as a zwitterion in the environment. In H(Al) montmorillonite, aspartic acid showed an L-2 type adsorption isotherm with an initial preferential sorption when compared with the solvent or other solutes followed by a decrease in sorption as more solute was sorbed(4).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Aspartic acid	Aspartic acid	56-84-8	200-291-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

16. Other information

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer: 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. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.