

According to Regulation (EC) No 1907/2006

# L-Serine

Version number: 1  
Issued: 2023-10-05



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name**

L-Serine

**CAS number**

56-45-1

**EC number**

200-274-3

**Synonyms**

2-Amino-3-hydroxypropionic acid

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

**Relevant identified uses**

Research and development.

**Not suitable for use in**

Not suitable for human consumption or veterinary purposes.

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Molekula Group

Street address

Molekula Ltd, Lingfield Way, Darlington,  
DL1 4XX Darlington  
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

**Contact person**

Kevin Banks

**Email address**

+44 (0) 7769276927

### 1.4. Emergency telephone number

**Poison center/Additional emergency number**

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The product is not classified as hazardous according to Regulation (EC) No 1272/2008.

### 2.2. Label elements

The product does not require labelling in accordance with CLP Regulation (EC) No 1272/2008.

### 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
L-Serine	56-45-1 200-274-3 - -	100%	-	- - -	-

### Molecular weight

105.09

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation

Move to fresh air if inhaled.

Get medical attention if any discomfort continues.

#### Skin contact

Rinse skin with water.

If skin irritation or rash occurs: Get medical advice/attention.

#### Eye contact

Remove contact lenses if present. Rinse eyes with water.

If eye irritation persists: Get medical advice/attention.

#### Ingestion

Rinse mouth.

Get medical advice/attention if you feel unwell.

#### Information for doctors

No data available.

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## 4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

### Inhalation

May cause respiratory irritation.

### Skin contact

Prolonged contact may cause dryness of the skin.

### Eye contact

May be slightly irritating to the eyes.

### Ingestion

May cause discomfort if swallowed.

## 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

#### Unsuitable extinguishing media

No specific fire fighting procedure given.

### 5.2. Special hazards arising from the substance or mixture

Specific hazards: None.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

Nitrous gases (NO<sub>x</sub>).

### 5.3. Advice for firefighters

#### Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. For personal protection, see section 8.

### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

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## 6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

## 6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Preventive handling precautions

Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation. For precautions see section 2.2.

#### General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

Store at ambient temperature. Store in a dry place. Store in a closed container. Protect from moisture. Protect from sunlight.

### 7.3. Specific end use(s)

No specific usage precautions noted.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits

No occupational exposure limit assigned.

#### DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
L-Serine (56-45-1/200-274-3)	DNEL	Chronic (long term) Dermal	750 mg/kg bw/day	Workers	Systemic
L-Serine (56-45-1/200-274-3)	DNEL	Chronic (long term) Inhalation	529 mg/m <sup>3</sup>	Workers	Systemic

#### PNEC/PEC

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Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
L-Serine (56-45-1/200-274-3)	PNEC	Sewage Treatment Plant	50 mg/l

## 8.2. Exposure controls

### Personal Protective Equipment Symbols



#### Eye / face protection

Wear eye protection.

#### Hand protection

Wear protective gloves. Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

Wash contaminated skin thoroughly after handling.

#### Other skin protection

Wash skin thoroughly after handling.

#### Respiratory protection

Provide adequate ventilation.

#### Environmental exposure controls

Avoid discharge into drains.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Physical state

Solid

#### Colour

White.

#### Odour

Odourless.

#### Melting point / freezing point

222 °C

#### Boiling point or initial boiling point and boiling range

No data available

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## Flammability

No data available

## Lower and upper explosion limit

No data available

## Flash point

No data available

## Auto-ignition temperature

No data available

## Decomposition temperature

No data available

## pH

No data available

## Kinematic viscosity

No data available

## Solubility

359.7 g/l

## Partition coefficient n-octanol/water

-3.069

## Vapour pressure

No data available

## Density and/or relative density

1.6 g/cm<sup>3</sup>

## Relative vapour density

No data available

## Particle characteristics

No data available

## 9.2. Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

There are no known reactivity hazards associated with this product.

### 10.2. Chemical stability

Stable under the prescribed storage conditions.

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## 10.3. Possibility of hazardous reactions

No data available

## 10.4. Conditions to avoid

Light. Moisture.

## 10.5. Incompatible materials

Strong oxidising agents.

## 10.6. Hazardous decomposition products

See section 5. Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Nitrous gases (NO<sub>x</sub>).

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of exposure	Test animals
L-Serine 56-45-1 / 200-274-3	LD50	>2000 mg/kg	Oral	-	Rat
L-Serine 56-45-1 / 200-274-3	LC50	>5.15 mg/l	Inhalation.	4 hours	Rat

#### Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species
L-Serine 56-45-1 / 200-274-3	No skin irritation.	4 hours	Rabbit

#### Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species
L-Serine 56-45-1 / 200-274-3	No eye irritation.	4 hours	Rabbit

#### Respiratory or skin sensitisation

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Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
L-Serine 56-45-1 / 200-274-3	Negative.	Guinea Pig	Guinea pig maximization test (GPMT):

### Germ cell mutagenicity

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
L-Serine 56-45-1 / 200-274-3	Negative.	Escherichia coli/Salmonella typhimurium	Ames test
L-Serine 56-45-1 / 200-274-3	Negative.	Mouse bone marrow	-

### Aspiration hazard

Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards

No data available

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
L-Serine 56-45-1 / 200-274-3	EC50	>83 mg/l	48 hours	Daphnia magna
L-Serine 56-45-1 / 200-274-3	EC50	>83 mg/l	48 hours	Daphnia magna

### 12.2. Persistence and degradability

#### Persistence and degradability

Product / Substance name CAS / EC no.	Type of test	Duration	Result	Degradation
L-Serine 56-45-1 / 200-274-3	aerobic	28 days	81%	The product is readily biodegradable.
L-Serine 56-45-1 / 200-274-3	aerobic	28 days	81%	The product is readily biodegradable.



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## 12.3. Bioaccumulative potential

No data available

## 12.4. Mobility in soil

No data available

## 12.5. Results of PBT and vPvB assessment

No data available

## 12.6. Endocrine disrupting properties

No data available

## 12.7. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### 14.1. UN number

Not applicable

### 14.2. UN proper shipping name

Not applicable

### 14.3. Transport hazard class(es)

Not applicable

### 14.4. Packing group

Not applicable

### 14.5. Environmental hazards

Not applicable

### 14.6. Special precautions for user

Not applicable

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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## National regulations

No data available

## 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

## SECTION 16: Other information

No data available