



MATERIAL SAFETY DATA SHEET

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

1.1 Product identifiers

Product name : L-Methionine
CAS-No. : 63-68-3

1.2 Details of the supplier of the safety data sheet

Company: Aurora Industry Co.,Ltd.
Address:Room 7033, No.9-1, Haifu Road, Dalian Free Trade Zone, China
Tel:0411-82288674

SECTION 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

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : (S)-2-Amino-4-(methylmercapto)butyric acid L-2-Amino-4-(methylthio)butanoic acid

Formula : C₅H₁₁NO₂S

Molecular weight : 149.21 g/mol

CAS-No. : 63-68-3

EC-No. : 200-562-9

No components need to be disclosed according to the applicable regulations.

SECTION 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

SECTION 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_x), Sulphur oxides Combustible.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 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
No special environmental precautions required.

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.

SECTION 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. Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 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

No special environmental precautions required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|--|
| a) Appearance | Form: crystalline
Colour: colourless |
| b) Odour | characteristic |
| c) Odour Threshold | No data available |
| d) pH | 5 - 7 at 10 g/l at 20 °C (68 °F) |
| e) Melting point/freezing point | Melting point/range: 284 °C (543 °F) |
| f) Initial boiling point and boiling range | 276 - 284 °C 529 - 543 °F - Decomposes below the boiling point. |
| g) Flash point | ()No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | The product is not flammable. No |
| j) Upper/lower flammability or explosive limits | data available |
| k) Vapour pressure | No data available |
| l) Vapour density | No data available |
| m) Relative density | 1.34 g/cm ³ at 20 °C (68 °F) |
| n) Water solubility | soluble |
| o) Partition coefficient: n-octanol/water | log Pow: -1.87 at 30 °C (86 °F) - Bioaccumulation is not expected. |
| p) Auto-ignition temperature | 213 °C (415 °F) - Relative self-ignition temperature for solids 280 - 282 °C |
| q) Decomposition temperature | (536 - 540 °F) - |



-
- | | |
|-------------------------|-------------------|
| r) Viscosity | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

9.2 Other safety information

Bulk density	ca.550 kg/m ³
Surface tension	68.3 mN/m at 1g/l at 20 °C (68 °F) - OECD Test Guideline 115 Dissociation constant
constant	2.28 at 25 °C (77 °F)

SECTION 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

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects Acute toxicity

LD50 Oral - Rat - male and female - > 10,000 mg/kg (OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD

Test Guideline 405)

Respiratory or skin sensitisation

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Ames test

Salmonella typhimurium



Result: negative
(ECHA)

In vitro mammalian cell gene mutation test Mouse

lymphoma test

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.

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 on OSHA's list of regulated carcinogens.

Reproductive toxicity

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

Repeated dose toxicity - Rat - male - Feed - 90 d - No observed adverse effect level - > 1,474 mg/kg
RTECS: PD0457000

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

Essential amino acid.

No toxic effects are to be expected when the product is handled appropriately. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - > 3,200 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 324 mg/l - 48 h (OECD Test Guideline 202)



Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - > 1,000 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - Pseudomonas putida - 10,000 mg/l - 18 h (DIN 38 412 Part 8)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d
Result: 97 % - Readily biodegradable. (OECD Test Guideline 301A)

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

Discharge into the environment must be avoided.

SECTION 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.

SECTION 14: Transport information DOT

(US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

SARA 302 Components

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

SARA 313 Components

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

SECTION 16: Other information

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The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.