

SAFETY DATA SHEET

1. Identification

Product identifier: MetAMINO®

Chemical name: DL-Methionine, Feed Grade 99%

Other means of identification

Recommended use: Feed additive The substance is exempted from the registration provisions according to Regulation (EC) 1907/2006 (REACH) chapter 1, art. 2, clause 5.

Recommended restrictions: Not known.

Manufacturer/Importer/Distributor Information

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2. Hazard(s) identification

According to Hazardous Products Regulations
Not classified

Label Elements

Hazard Symbol:	No symbol
Signal Word:	No signal word.
Hazard Statement:	Not applicable
Precautionary Statements	Not applicable

Other hazards: Dusts might form explosive mixtures with air.

3. Composition/information on ingredients

Chemical name:

DL-Methionine, Feed Grade 99%

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
DL-Methionine		59-51-8	>=99%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures
Description of necessary first-aid measures
General information:

Pay attention to self-protection. Remove victims from hazardous area. Immediately remove soiled or soaked clothing and remove it to a safe distance. Keep victim warm, in a stabilized position and covered. Do not leave victims unattended. If the casualty is unconscious: Place the victim in the recovery position.

Inhalation:

Inhalation is possible if aerosols, mists, dusts, or smoke form. Move victims into fresh air. With labored breathing: Provide with oxygen. Consult a doctor. If the casualty is not breathing: Perform mouth-to-mouth resuscitation, notify emergency physician immediately.

Skin Contact:

Wash off affected area immediately with plenty of water for at least 15 minutes. If symptoms persist, consult a physician for treatment.

Eye contact:

With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes. In case of persistent discomfort: Consult an ophthalmologist.

Ingestion:

Rinse mouth. Immediately give large quantities of water to drink. Obtain medical attention.

Personal Protection for First-aid Responders:

In the event of fire, wear self-contained breathing apparatus.

Most important symptoms/effects, acute and delayed
Symptoms:

None known.

Hazards:

Other dangerous properties can not be excluded.

Indication of immediate medical attention and special treatment needed
Treatment:

This substance does not have any noteworthy noxious potential. Damage to health is thus not expected.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water. Foam. Water fog.

Unsuitable extinguishing media: Carbon Dioxide.

Specific hazards arising from the chemical: May be released in case of fire: hydrocyanic acid, flammable smouldering gases, NOX. Oxides of Sulfur. Carbon Monoxide. Carbon Dioxide.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities. Fire residues should be disposed of in accordance with the regulations.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep unauthorized personnel away.

Methods and material for containment and cleaning up: Absorb mechanically avoiding production of dust.

Environmental Precautions: Do not allow the product into the following compartments: groundwater

7. Handling and storage

Precautions for safe handling: Handle in accordance with good industrial hygiene and safety practice. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

Conditions for safe storage, including any incompatibilities: Store in a cool and shaded area. Keep containers dry and tightly closed to avoid moisture absorption and contamination. COMBUSTIBLE. Keep away from sources of ignition - No smoking. Avoid dust formation. VDI 2263 "Dust fires and dust explosions; dangers, evaluation, preventive measures." Ensure there are sufficient retaining facilities for water used to extinguish fire.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Observe national threshold limit values.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

Appropriate Engineering Controls

Ensure suitable suction/aeration at the work place and with operational machinery. Take precautionary measures against static discharges. Earthing of equipment.

Individual protection measures, such as personal protective equipment
General information: No data available.

Eye/face protection: Safety glasses with side-shields If dust occurs: basket-shaped glasses

Skin Protection
Hand Protection: Material: Nitrile.
 Break-through time: 8 h
 Guideline: DIN EN 374 Material: Natural rubber.
 Break-through time: 8 h
 Guideline: DIN EN 374

Other: No special protective equipment required.

Respiratory Protection: No special protective equipment required. If dust occurs: dust mask with P1 particle filter

Hygiene measures: Wash face and/or hands before break and end of work. Cleanse and apply cream to skin after work.

9. Physical and chemical properties
Appearance
Physical state: solid

Form: solid

Color: white to light brown

Odor: Characteristic

Odor Threshold: < 1 ppb

pH: 5,6 - 6,1 (10 g/l, 25 °C) literature

Melting Point: 281 °C Decomposition literature

Boiling Point: Not applicable

Flash Point: Not applicable

Evaporation Rate: No data available.

Flammability (solid, gas): Not classified as a flammability hazard

Flammability Limit - Upper (%): No data available.

Flammability Limit - Lower (%): No data available.

Vapor pressure: < 0,0000001 hPa (calculated) Modified Grain Method

Vapor density (air=1): No data available.

Density: No data available.

Relative density: No data available.

Solubility(ies)
Solubility in Water: 33,5 g/l (25 °C) literature

Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-1,87 literature
Autoignition Temperature:	> 150 °C (VDI 2263-1) in 8l wire basket
Decomposition Temperature:	215 °C (TG (thermal gravimetric analysis))
Kinematic viscosity:	No data available.
Dynamic viscosity:	Not applicable
Explosive properties:	The product is susceptible to dust explosion.
Oxidizing properties:	Not to be expected in view of the structure
Other information	
Dust Explosion Limit, Lower:	30 g/m3 (VDI Guideline 2263 sheet 1)
Dust Explosion Description Number Kst:	85 m.b./s
Minimum ignition energy:	> 10 mJ (VDI Guideline 2263 sheet 1) sieve fraction without inductance
Minimum ignition temperature:	330 °C (VDI Guideline 2263 sheet 1) (BAM-furnace) Standard commercial product with characteristic grain size distribution is normally flammable.
Dust explosion properties:	St1
Burning Rate:	1.200 s
Minimum Exposable Concentration (MEC):	30 g/m3
Burning Number:	Burning Number: 5 VDI 2263
Self Ignition Temperature:	> 150 °C in 8l wire basket

10. Stability and reactivity

Reactivity:	No further information available
Chemical Stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Dust can form an explosive mixture in air.
Conditions to avoid:	See chapter Conditions for safe storage, including any incompatibilities
Incompatible Materials:	No further information available
Hazardous Decomposition Products:	No further information available

11. Toxicological information

General information: gastro-intestinal symptoms: nausea, vomiting Side-effects were observed in the event of higher dosage (10 g)

Information on likely routes of exposure

Inhalation:	Relevant route of exposure. Information on effects are given below.
Skin Contact:	Relevant route of exposure. Information on effects are given below.
Eye contact:	Relevant route of exposure. Information on effects are given below.

Ingestion: If handled correctly, not a relevant route of exposure. Information on effects are given below.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: No data available.

Skin Contact: No data available.

Eye contact: No data available.

Ingestion: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product: LD 50 (Rat): > 10.000 mg/kg

Dermal Product: Not classified for acute toxicity based on available data.

Inhalation Product: LC0 (Rat): > 5,25 mg/l

Repeated dose toxicity

Product: NOAEL (Rat(male), Oral): 1.253 mg/kg
NOAEL (Rat(female), Oral): 1.423 mg/kg

Skin Corrosion/Irritation

Product OECD 404 (Rabbit, 4 h): Not irritating

Serious Eye Damage/Eye Irritation

Product: Slightly irritating.
No data available.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.
Buehler Test, OECD 406 (Guinea Pig): Not a skin sensitizer.

Carcinogenicity

Product: No data available.

Germ Cell Mutagenicity

In vitro

Product: (literature)no evidence of mutagenic effects
Ames test (OECD 471): negative

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50 (Brachydanio rerio (zebrafish), 96 h): > 3.200 mg/l
NOEC (Brachydanio rerio (zebrafish), 96 h): 3.200 mg/l

Aquatic Invertebrates

Product: EC 50 (Daphnia magna, 48 h): 324 mg/l
NOEC (Daphnia magna, 48 h): 220 mg/l

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: EC 50 (Desmodesmus subspicatus (green algae), 72 h): > 1.000 mg/l

Biomass
 EC 50 (Desmodesmus subspicatus (green algae), 72 h): > 1.000 mg/l
 growth rate

Persistence and Degradability

Biodegradation
Product: Readily biodegradable

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: low log Pow: see chapter 9

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: -1,87 literature

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments
 DL-Methionine No data available.

Other adverse effects: No further information available

13. Disposal considerations

Disposal methods: Disposal according to local authority regulations. Pack and label wastes like the pure substance. Do not detach label from the delivery containers prior to disposal. Offer rinsed packaging material to local recycling facilities.

Contaminated Packaging: Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.

14. Transport information

International Regulations

UNRTDG
 Not regulated as a dangerous good

IATA-DGR
 Not regulated as a dangerous good

IMDG-Code
 Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
 Not applicable for product as supplied.

15. Regulatory information

International regulations**Montreal protocol**

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

16. Other information, including date of preparation or last revision**Issue Date:** 17.12.2019**Version #:** 1.3**Further Information:** No data available.**Revision Information:** Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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