

SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: BIOLYS® bulk**Chemical name:**

L-Lysine sulphate and its by-products from fermentation

Other means of identification

None.

Recommended restrictions**Recommended use:** Feed additive**Restrictions on use:** Not known.**Manufacturer/Importer/Distributor Information**

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2. Hazard(s) identification

Hazard Classification**OSHA hazard(s)**

Combustible dust

Label Elements

Hazard Symbol: No symbol

Signal Word: No signal word.

Hazard Statement: Not applicable

Precautionary Statements

Not applicable

Hazard(s) not otherwise classified (HNOC):

May form combustible dust concentrations in air.

3. Composition/information on ingredients
Chemical name:

L-Lysine sulphate and its by-products from fermentation

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
L-Lysine, sulfate		60343-69-3	>=75%

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

Composition information of impurities and stabilizers

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
By-products from fermentation			<=25%

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

Composition Comments:

The components are not hazardous or are below required disclosure limits.

The exact concentration has been withheld as a trade secret.

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. mist

Unsuitable extinguishing media: quenching powder Carbon Dioxide.

Specific hazards arising from the chemical: In the case of fire, the following hazardous smoke fumes may be produced: carbon monoxide, carbon dioxide, nitric oxides, hydrocyanic acid. In the event of fire and/or explosion do not breathe fumes.

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.

Accidental release measures: Avoid dust formation.

Methods and material for containment and cleaning up: Use mechanical handling equipment.

Environmental Precautions: Obey relevant local, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation):	Ensure suitable suction/aeration at the work place and with operational machinery. Earthing of equipment. Take precautionary measures against static discharges.
Safe handling advice:	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.
Contact avoidance measures:	No data available.
Hygiene measures:	Wash face and/or hands before break and end of work. Cleanse and apply cream to skin after work.

Storage

Safe storage conditions:	Store in a cool and shaded area. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Keep away from sources of ignition - No smoking. Avoid dust formation. VDI 2263 "Dust fires and dust explosions; dangers, evaluation, preventive measures."
Safe packaging materials:	No data available.
Storage Temperature:	No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls	Ensure suitable suction/aeration at the work place and with operational machinery. Earthing of equipment. Take precautionary measures against static discharges.
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Individual protection measures, such as personal protective equipment

Eye/face protection:	Safety glasses with side-shields conforming to EN166
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Skin Protection

Hand Protection:	Additional Information: Wear protective gloves made of the following materials: rubber or plastics., Change protective gloves regularly.
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Skin and Body Protection:	A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.
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Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

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:	dry, free flowing granules
Color:	Light brown
Odor:	Characteristic
Odor Threshold:	No data available.
pH:	Not determined.
Melting Point:	Not determined.
Boiling Point:	Not applicable
Flash Point:	Not applicable solid
Evaporation Rate:	No data available.
Flammability (solid, gas):	Not classified as a flammability hazard comparable product
Explosive limit - upper:	not to be determined
Explosive limit - lower:	60 g/m ³
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Density:	No data available.
Relative density:	No data available.
Solubility in Water:	partly soluble > 363 g/l (23 °C) comparable product
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-3.05 tested substance: L-Lysine
Self Ignition Temperature:	> 200 °C (VDI 2263-1) (in dm ³ wire basket (IMDG code))
Decomposition Temperature:	No data available.
Kinematic viscosity:	No data available.
Dynamic viscosity:	Not applicable solid Not applicable solid

Other information

Bulk density:	620 - 670 kg/m ³
Particle Size:	11 µm
Explosive properties:	Dusts of the product are explosible.
Oxidizing properties:	Not to be expected in view of the structure
Dust Explosion Description Number Kst:	109 m.b./s
Minimum ignition energy:	> 300 mJ (VDI Guideline 2263 sheet 1) sieve fraction with inductance > 44 mJ calculated
Minimum ignition temperature:	450 °C (VDI Guideline 2263 sheet 1) (BAM-furnace) grain size < 63µm
Metal Corrosion:	No data available.
Dust explosion properties:	St1 ST-1

Minimum Exposable Concentration (MEC): 60 g/m³
Burning Number: Burning Number: 2 Combustibility test in accordance with VDI 2263 BZ 2 - briefly ignites and rapidly extinguishes.

10. Stability and reactivity

Reactivity: No data 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 hazardous decomposition products known.

11. Toxicological information

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): > 5,110 mg/kg comparable product

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

Inhalation Product: NOAEL (Rat): 5.3 mg/l Dusts, mists and fumes, comparable product

Repeated dose toxicity**Product:** NOAEL (Rat(male/female), Oral): 1,869 mg/kg comparable product**Skin Corrosion/Irritation****Product:** Not irritating OECD 404 (Rabbit): Not irritating comparable product**Serious Eye Damage/Eye Irritation****Product:** Not irritating Rabbit: comparable product**Respiratory or Skin Sensitization****Product:** Buehler Test, OECD 406 (Guinea Pig): Not a skin sensitizer. comparable product**Carcinogenicity****Product:** Not classified Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogens present or none present in regulated quantities

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogens present or none present in regulated quantities

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

No carcinogens present or none present in regulated quantities

Germ Cell Mutagenicity**In vitro****Product:** Ames test (OECD 471): negative
Chromosomal aberration (OECD 473): negative**In vivo****Product:** No data available.**Reproductive toxicity****Product:** Not classified**Specific Target Organ Toxicity - Single Exposure****Product:** No data available.**Components:**

By-products from fermentation Not classified

Specific Target Organ Toxicity - Repeated Exposure**Product:** Based on available data, the classification criteria are not met.**Aspiration Hazard****Product:** No data available.**Components:**L-Lysine, sulfate Not applicable
By-products from fermentation Not classified**Other effects:** No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50 (Cyprinus carpio (Carp), 96 h): > 200 mg/l
LC0 (Cyprinus carpio (Carp), 96 h): > 200 mg/l

Aquatic Invertebrates

Product: EC 50 (Daphnia magna, 48 h): > 1,000 mg/l comparable product
NOEC (Daphnia magna, 48 h): 340 mg/l comparable product

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 (Scenedesmus subspicatus), 72 h): > 2,000 mg/l growth rate
EC 50 (Desmodesmus subspicatus (Scenedesmus subspicatus), 72 h): 450 mg/l Biomass

Persistence and Degradability

Biodegradation

Product: No data available.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Partition Coefficient n-octanol / water (log K_{ow})

Product: Log K_{ow}: -3.05 tested substance: L-Lysine

Mobility in soil: No data available.

Components:

L-Lysine, sulfate No data available.
By-products from fermentation No data available.

Other adverse effects: No further information available

13. Disposal considerations

Disposal methods: Waste must be disposed of in accordance with federal, state, provincial and local regulations.

Contaminated Packaging: Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information

Domestic regulation

49 CFR

Not regulated as a dangerous good

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

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Combustible dust

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

None present or none present in regulated quantities.

Product name: BIOLYS® bulk

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

US State Regulations**US. California Proposition 65**

No ingredient requiring a warning under CA Prop 65.

US. New Jersey Worker and Community Right-to-Know Act

No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

16. Other information, including date of preparation or last revision**Issue Date:** 03/16/2020**Version #:** 1.4**Further Information:** No data available.**Revision Information** Changes since the last version are highlighted in the margin. This version replaces all previous versions.**Disclaimer:** This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. EVONIK EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.