

SAFETY DATA SHEET**Biolys®**

Material no.		Version	3.0 / US
Specification	140080	Revision date	04/22/2015
Order Number		Print Date	04/22/2015
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1. Identification**1.1. Product identifier**

Trade name Biolys®

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified Feed additive

1.3. Details of the supplier of the safety data sheetCompany Evonik Corporation USA
299 Jefferson Road
Parsippany, NJ 07054-0677
USA

Telephone 973-929-8000

Telefax 973-929-8040

Email address Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:**CHEMTREC - US & CANADA:** 800-424-9300**CHEMTREC MEXICO:** 01-800-681-9531**CHEMTREC INTERNATIONAL:** +1 703-527-3887 (collect calls accepted)

Product Regulatory Services : 973-929-8060

2. Hazards identification**2.1. Classification of the substance or mixture**

Classification according to Regulation 29CFR 1910.1200

Remarks Not a hazardous substance or mixture.

2.2. Label elements

Statutory basis Classification according to Regulation 29CFR 1910.1200

Remarks Not a hazardous substance or mixture.

Contains L-Lysine, sulfate, Water, By-products from fermentation
The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 100 %**2.3. Other hazards**

Dusts might form explosive mixtures with air.

Inhalation No hazard expected in normal use.

Skin No hazard expected in normal use.

Eyes No hazard expected in normal use.

Ingestion No hazard expected in normal use.

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3. Composition/information on ingredients**• L-Lysine, sulfate** >= 67%

CAS-No. 60343-69-3

Remarks Not a hazardous substance or mixture.

• By-products from fermentation >= 28%

Remarks Not a hazardous substance or mixture.

Other information

This material is classified as not hazardous under OSHA regulations.
This product is intended for FDA regulated uses only.

4. First aid measures**4.1. Description of first aid measures****General advice**

Remove contaminated or saturated clothing.

Inhalation

In case product dust is released:

Possible discomfort: cough, sneezing

Move victims into fresh air.

If symptoms persist, call a physician.

Skin contact

Wash off with soap and plenty of water.

Eye contact

Rinse thoroughly with plenty of water keeping eyelid open.

In case of persistent discomfort: Consult an ophthalmologist.

Ingestion

Have the mouth rinsed with water.

After absorbing large amounts of substance:

Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed**4.3. Indication of any immediate medical attention and special treatment needed**

After absorbing large amounts of substance:

Acceleration of gastrointestinal passage

administration of activated charcoal.

5. Fire-fighting measures**5.1. Extinguishing media**

Suitable extinguishing media: water, mist

Unsuitable extinguishing media: quenching powder, Carbon dioxide (CO₂)**5.2. Special hazards arising from the substance or mixture**

In the case of fire, the following hazardous smoke fumes may

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be produced: carbon monoxide, carbon dioxide, nitric oxides, hydrocyanic acid.
In the event of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters

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.

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

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Wear personal protective equipment. Keep unauthorized persons away.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

Use mechanical handling equipment.

Additional advice

Avoid dust formation.

7. Handling and storage**7.1. Precautions for safe handling**

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities**Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking.

Avoid dust formation.

VDI 2263 "Dust fires and dust explosions; dangers, evaluation, preventive measures."

Storage

Store in a cool and shaded area.

Keep containers dry and tightly closed to avoid moisture absorption and contamination.

German storage class

11 - Combustible Solids

Dust explosion class

St1

Method:

VDI Guideline 2263 sheet 1

Maximum rate of pressure rise:

99 bar/s

Standardized max. rate of pressure increase, KSt:

99bar·m/s

Related to substance:

comparable product

8. Exposure controls/personal protection**8.1. Control parameters****• exposure limit for dust**

CAS-No.

Control parameters 3 mg/m³

Time Weighted Average (TWA):(ACGIH)

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type of exposure	Respirable fraction. Suitable measuring processes are: NIOSH method 0500 NIOSH method 0600	
Control parameters	10 mg/m3	Time Weighted Average (TWA):(ACGIH)
type of exposure	Inhalable particulate.	
Control parameters	15 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(OSHA Z1)
type of exposure	Total dust.	
Control parameters	5 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(OSHA Z1)
type of exposure	Respirable fraction. Suitable measuring processes are: NIOSH method 0500 NIOSH method 0600	

Other information

none known.

DNEL/DMEL values

Remarks No substance-related safety assessment is necessary / has been conducted for this product.

PNEC values

Remarks No substance-related safety assessment is necessary / has been conducted for this product.

8.2. Exposure controls**Engineering measures**

Ensure suitable suction/aeration at the work place and with operational machinery.

Earthing of equipment.

Take precautionary measures against static discharges.

Personal protective equipment**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.

Hand protection

Wear protective gloves made of the following materials: rubber or plastics.

Change protective gloves regularly.

Eye protection

Safety glasses

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.

Hygiene measures

Wash face and/or hands before break and end of work.

Cleanse and apply cream to skin after work.

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Protective measures

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.

9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

physical state	solid
Colour	light brown
Form	solid
Odour	characteristic
Odour Threshold	not determined
pH	not determined
Melting point/range	not determined
Boiling point/range	not applicable
Flash point	not applicable solid
Evaporation rate	No data available
Flammability (solid, gas)	not highly flammable Method: UN method N.1
Lower explosion limit	dust: 60 g/m ³ (8.9 µm) dust: 60 g/m ³ grain size < 63µm
Upper explosion limit	not to be determined
Vapour pressure	No data available
Vapour density	No data available
Relative vapour density	no data available
Relative density	No data available
Water solubility	> 363 g/l (23 °C) partly soluble comparable product
Partition coefficient: n-octanol/water	log Pow: -3.05 Related to substance: L-Lysine
Autoignition temperature	450 °C Method: VDI Guideline 2263 sheet 1 (BAM-furnace)

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grain size
< 63µm

Thermal decomposition No data available

Viscosity, dynamic not applicable
solid**9.2. Other information**

Explosiveness not to be expected, given the composition employed

Bulk density 620 - 670 kg/m³glow temperature > 400 °C
Method: VDI 2263Minimum ignition energy > 300 mJ (25 °C)
Classification: Normal combustability
Method: VDI Guideline 2263 sheet 1
mean grain size: 46 µm
sieve fraction
comparable product
with inductancemaximum absolute explosive pressure 8.6 bar
grain size
< 63µm8.6 bar
mean grain size
8,9µm

Metal corrosion no data available

speed of hydrolysis half-life period: 1 years (25 °C) (pH 7)
Method: 92/69/EEC, C.7Burning number BZ 2 - briefly ignites and rapidly extinguishes.
Method: Combustibility test in accordance with VDI 2263**10. Stability and reactivity****10.1. Reactivity**

No further information available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Dust can form an explosive mixture in air.

10.4. Conditions to avoid

See chapter

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7.2. Conditions for safe storage, including any incompatibilities

10.5. Incompatible materials**10.6. Hazardous decomposition products**

No hazardous decomposition products known.

11. Toxicological information**11.1. Information on toxicological effects**

Acute oral toxicity	LD50 Rat: > 5110 mg/kg Method: OECD Test Guideline 401 Test substance: comparable product
Acute inhalation toxicity	NOAEL Rat: 5.3 mg/l / 4 h Method: OECD Test Guideline 403 Test substance: comparable product Assessment: The substance or mixture has no acute inhalation toxicity An Expert Judgment stated that no classification is necessary based on present knowledge. limit test (maximum concentration attainable in experiments) - No deaths occurred.
Acute dermal toxicity	Assessment: no data available
Skin irritation	Rabbit No skin irritation Method: OECD Test Guideline 404
Eye irritation	Rabbit No eye irritation Method: OECD Test Guideline 405
Sensitization	Buehler Test Guinea pig: Does not cause skin sensitisation. Method: OECD Test Guideline 406
Repeated dose toxicity	Oral Rat Testing period: 28 d Subsequent observation period: 42 day NOAEL: > 1870 mg/kg Method: OECD 407
Assessment of STOT single exposure	Assessment: no data available
Assessment of STOT repeat exposure	Assessment: no data available
Risk of aspiration toxicity	no data available
Gentoxicity in vitro	Ames test Salmonella typhimurium negative Method: OECD TG 471 chromosomal aberration human lymphocytes

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negative

Metabolic activation: S-9 rat liver mix

Method: OECD TG 473

Carcinogenicity	Not to be expected due to the "in vitro" test result.
carcinogenicity assessment	Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.
Toxicity to reproduction	1 generation pharyngeal probe Rat: in maternally non-toxic doses NOEL (No Observed Effect Level) of parents: > 1000 mg/kg NOEL F1: > 1000 mg/kg Method: OECD Test Guideline 415

Toxicological information on components**L-Lysine, sulfate**

Acute oral toxicity	Assessment:	no data available
Acute inhalation toxicity	Assessment:	no data available
Acute dermal toxicity	Assessment:	no data available

By-products from fermentation

Acute oral toxicity	Assessment:	no data available
Acute inhalation toxicity	Assessment:	no data available
Acute dermal toxicity	Assessment:	no data available

12. Ecological information**12.1. Toxicity**

Toxicity to fish	LC50 semi-static test <i>Cyprinus carpio</i> : > 200 mg/l / 96 h Method: OECD TG 203
	LC0 semi-static test <i>Cyprinus carpio</i> : > 200 mg/l / 96 h Method: OECD TG 203
Toxicity in aquatic invertebrates	NOEC <i>Daphnia magna</i> : 340 mg/l / 48 h Test substance: comparable product Method: OECD TG 202
	EC50 <i>Daphnia magna</i> : > 1000 mg/l / 48 h Test substance: comparable product Method: OECD TG 202
Toxicity to algae	EC50 static test <i>Desmodesmus subspicatus</i> : > 2000 mg/l / 72 h End point: growth rate Method: OECD TG 201

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EC50 static test *Desmodemus subspicatus*: 450 mg/l / 72 h
End point: Biomass
Method: OECD TG 201

12.2. Persistence and degradability

Biodegradability Result: rapidly biodegradable
Test substance: comparable product
Method: OECD TG 301 A

12.3. Bioaccumulative potential

Bioaccumulation No data available

12.4. Mobility in soil

Mobility No data available

12.5. Other adverse effects

Further Information No further information available

Ecotoxicology Assessment**· L-Lysine, sulfate**

|| Acute aquatic toxicity no data available

· By-products from fermentation

|| Acute aquatic toxicity no data available

13. Disposal considerations**13.1. Waste treatment methods****Product**

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

Uncleaned packaging

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

14. Transport information

Not dangerous according to transport regulations.

14.1. UN number: --
14.2. UN proper shipping name: --
14.3. Transport hazard class(es): --
14.4. Packing group: --
14.5. Environmental hazards (Marine): --

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pollutant):

- 14.6. Special precautions for user: Yes
Not dangerous according to transport regulations.

15. Regulatory information**US Federal Regulations****OSHA**

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- No SARA Hazards

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

Other US Federal Regulatory Information

Observe national regulations.

State Regulations**California Proposition 65**

A warning under the California Drinking Water Act is required only if listed below:

- None listed

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An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	0
Flammability :	1
Physical Hazard :	0

16. Other information**Further information**

Revision date 04/22/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(E)C50	LC50 or EC50
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative

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voc volatile organic compounds
WHMIS Workplace Hazardous Materials Information System
WHO World Health Organization