



Safety Data Sheet

Original Preparation Date: 06-May-2010

Revision Date: 10-May-2017

Revision Number: 1

1. Identification

Product Name:

Liquid L-Lysine 50%

Product Code:

035101

Synonyms:

L-Lys-Free Base, IFN: 5-08-22

Use of the Substance / Preparation:

Animal Feed

Contact Manufacturer:

U.S.A. Agent/Agent U.S.A

ADM Specialty Feed Ingredients

4666 Faries Parkway

P.O. Box 1470

Decatur, Illinois 62525 USA

TEL: +1-217-451-8157 (business hours)

2. Hazard(s) identification

Emergency Overview

Health injuries are not known or expected under normal use.

Appearance

Dark brown

Physical State

Liquid

Odor

Fermentation

This product is NOT classified as hazardous according to the criteria contained in the Hazard Communication Standard 29 CFR 1910.1200 (known as HCS 2012) or the Hazardous Products Regulations SOR/2015-17 (known as WHMIS 2015).

3. Composition/information on ingredients

Common Name L-Lysine

Molecular Formula C₆ H₁₄ N₂ O₂

Non-hazardous Components

Chemical Name	CAS-No	Weight %	North American Substance Hazard Class
Water	7732-18-5	50	None known
(S)-2,6 Diaminohexanoic acid	56-87-1	50	None known

4. First-aid measures

Description of first aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids.

Skin Contact Wash off immediately with soap and plenty of water.

Inhalation Move to fresh air.

Ingestion Clean mouth with water and afterwards drink plenty of water. Consult a physician if necessary.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and affects, both acute and delayed

Eyes Not expected to pose health issues for the eye.

Skin Based on available data, not, or only slightly irritating.

Inhalation Excessive inhalation of mist may result in respiratory irritation.

Ingestion May be harmful if swallowed. Not for human consumption.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Special forms of treatment and immediate medical attention are not specified. Treat Symptomatically.

5. Fire-fighting measures

Flammable Properties

The product is capable of burning but not readily ignited. Will burn if dried and heated with a flame.

Extinguishing media

Suitable Extinguishing Media Water. Carbon dioxide (CO₂). Dry chemical.

Unsuitable Extinguishing Media None known.

Special hazards arising from the substance or mixture

Hazardous Combustion Products Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x).

Specific Hazards Arising from the Chemical None known.

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge No information available.

Advice for fire-fighters

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA



Health 0
Flammability 1

Stability and Reactivity 0
Physical hazard None known

6. Accidental release measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions

Prevent further leakage or spillage if safe to do so.

Methods and Materials for Containment and Cleaning Up

Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. After cleaning, flush away traces with water.

7. Handling and storage

Handling

Handle in accordance with good industrial hygiene and safety practice.

Storage

Keep containers tightly closed to avoid contamination.

8. Exposure controls/Personal protection

Exposure Limits

This product is not known to contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological Limit Values

No biological limit values have been listed for the component(s) of this product.

Appropriate Engineering Controls

Ensure adequate ventilation, especially in confined areas.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

Personal Protective Equipment

Eye/face Protection.

If exposed to airborne mist, or if splashing is possible, appropriate safety glasses with side-shields or safety goggles are recommended.

Skin and Body Protection

Long sleeved clothing and protective gloves are recommended.

Respiratory Protection

In case of mist, spray or aerosol exposure wear suitable personal respiratory protection.



9. Physical and chemical properties

Appearance	Dark brown
Physical State	Liquid
Odor	Fermentation
Odor Threshold	No information available
pH	approx. 10
Flash Point	No information available
Autoignition Temperature	No data available
Boiling point	115 °C / 240 °F
Melting/Freezing Point	-17 °C / 1.4 °F
Decomposition temperature	No information available
Oxidizing Properties	No information available
Explosion Limits	No information available
Water Solubility	Soluble
Solubility(ies)	Partly soluble in alcohol and insoluble in ether.
Evaporation Rate	Not applicable
Vapor Pressure	Not applicable
Vapor Density	No information available
Density	9.6 lb/gal (1.146 g/cm ³) @ 25°C
Specific Gravity / Relative Density	No information available
Bulk Density	1.13 g/cm ³ [9.50 lb./gal.] @25°C / 1.15 g/cm ³ [9.60 lb./gal.] @5°C
Viscosity (kinematic)	30-40 cps @ 25°C / 120-150 cps @ 5°C
Partition Coefficient (n-octanol/water)	No information available

10. Stability and reactivity

Stability Stable under normal conditions.

Possibility of Hazardous Reactions May generate heat when neutralized with acid.

Conditions to Avoid Heat, flames and sparks.

Incompatible Materials No materials to be especially mentioned.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x).

11. Toxicological information

Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.
Skin corrosion/irritation	Based on available data, not, or only slightly irritating.
Serious eye damage/eye irritation	Based on available data, no evidence of serious eye damage / irritation.
Respiratory or skin sensitisation	Based on available data, not expected to be a skin or respiratory sensitiser.
Germ cell mutagenicity	Not expected to be mutagenic.
Carcinogenicity	Based on available data, no evidence of carcinogenicity.
Reproductive toxicity	Based on available data, no evidence of reproductive toxicity
STOT - single exposure	No evidence of toxicity.
STOT - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, no known aspiration hazard.

Potential health effects

Eyes

Not expected to pose health issues for the eye.

Skin

Based on available data, not, or only slightly irritating.

Inhalation

Excessive inhalation of mist may result in respiratory irritation.

Ingestion

May be harmful if swallowed. Not for human consumption.

12. Ecological information

Ecotoxicity

Contains no substances known to be hazardous to the environment. Contains no substances known to be not degradable in waste water treatment plants.

Chemical Name	Fresh Water Algae	Acute Fish Toxicity	Daphnia (Water flea)	Effects on micro-organisms	Other
(S)-2, 6 Diaminohexanoic acid		LC50: 96h > 1000 mg/l (Cyprinodon variegates)			LC50: 96h 470 mg/l (Mysidopsis bahia) Shrimps

Persistence/Degradability

Biodegradable.

Mobility

Soluble in water

PBT and vPvB assessment

No information available.

Other adverse effects

Nothing specific known.

13. Disposal considerations

Whenever possible, as rules and regulations allow, please recycle or manage materials to minimize waste.

Waste Disposal Methods

Dispose of in compliance with the laws and regulations pertaining to this product in your jurisdiction.

Contaminated Packaging

Empty containers should be decontaminated and taken for local recycling, recovery or waste disposal.

14. Transport information

Domestic transport regulations (USA)

DOT Not regulated.

Domestic transport regulations (Canada)

TDG Not regulated.

Domestic transport regulations (Mexico)

MEX Not regulated.

International transport regulations

ICAO Not regulated.

IATA Not regulated.

IMDG/IMO Not regulated.

15. Regulatory information

International Inventories

As animal feed, this product is exempted from the following inventories: U.S.A. (TSCA). China (IECSC). Japan (ENCS/ISHL). Korea (ECL). When used as "feed" defined in the Canadian Feeds Act 1995 and the Feeds Regulations (SOR/83-592), this product is exempted from the following inventory: Canada (DSL).

Chemical Name	TSCA	DSL	NDSL	ICL	EINECS	ELINCS	AICS
(S)-2,6 Diaminohexanoic acid	Yes	Yes	No	No	Yes Present	No	Yes

Chemical Name	ENCS ISHL	CHINA	PICCS	KECL	Taiwan	Turkey	NZIoC
(S)-2,6 Diaminohexanoic acid	Yes (9)-1633 2-(4)-172.2-(4)-582	Yes	Yes	Yes Annex 1 (KE-22657)	Yes	No	Yes

USA

Federal Regulations

Ozone Depleting Substances:

No Class I or Class II material is known to be used in the manufacture of, or contained in, this product.

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product is not known to contain any chemicals which are subject to the reporting requirements of the Act or regulations contained in 40 CFR 372.

CERCLA/SARA 103-302

Sections 103-302 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product is not known to contain any chemicals which are subject to the reporting requirements of the Act or regulations contained in 40 CFR 103-302.

SARA 311/312 Hazardous Categorization

Refer to the OSHA hazard classification(s) provided in section 2 of this SDS.

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 63)

This product is not known to contain any HAPS.

State Regulations

State Right-to-Know

No known components subject to "Right-To-Know" legislation.

Canada

(NPRI) Canadian National Pollutant Release Inventory

No known component is listed on NPRI.

Mexico

Mexico - Grade

Slight risk, Grade 1

16. Other information

Prepared By: ADM Bio-Products
Original Preparation Date: 06-May-2010
Revision Date: 10-May-2017
Revision Number: 1
Reason for revision: New SDS format. This version replaces all previous versions.

Literature References:

When available, hazard classifications for unreacted ingredients are obtained from supplier Safety Data Sheets.

Additional literature sources may include:

- TOXNET HSDB: a database of the National Library of Medicine's TOXNET system (<http://toxnet.nlm.nih.gov>)
- International Programme on Chemical Safety (IPCS) INCHEM website, which is provided in cooperation with the Canadian Centre for Occupational Health and Safety (CCOHS) (<http://www.inchem.org>)
- CSST Répertoire toxicologique: 2015 WHMIS classification of chemical substances (<http://www.csst.qc.ca/en/prevention/reptox/Pages/list-whmis-2015-a.aspx>)
- European Chemicals Agency (<http://echa.europa.eu>)
- GESTIS-DUST-EX combustion and explosion characteristics database (Institute for Occupational Safety and Health of the German Social Accident Insurance) <http://staubex.ifa.dguv.de/explosuche.aspx?lang=e>
- NITE Chemical Risk Information Platform (http://www.nite.go.jp/en/chem/chrip/chrip_search/srhInput)
- American Type Culture Collection (ATCC) (www.atcc.org)

Abbreviations and acronyms

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
A4 - Not classifiable as a human carcinogen
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Values
CAS - Chemical Abstract Service
Ceiling - Ceiling Limit Value: Concentrations that should never be exceeded at any given time (instantaneous)
CHINA - Chinese Inventory of Existing Chemical Substances (China)
CLP - Classification, Labelling and Packaging, Regulation (EC)1272/2008
CSA - Chemical Safety Assessment
CSR - Chemical Safety Report
Delisted - Substances Delisted from Report on Carcinogens
DNEL - Derived No Effect Level
DOT - U.S. Department of Transportation
DSL - Domestic Substance List (Canada)
EC - European Commission

EC No. - European Community number
EC50 - Half maximal effective concentration
EINECS - European Inventory of Existing Commercial Chemical Substances (EU)
ELINCS - European List of Notified Chemical Substances (EU)
ENCS - Existing and New Chemical Substances (Japan) / ISHL - Industrial Health and Safety Law (Japan)
EPCRA - Emergency Planning and Community Right-to-Know Act of 1986 (USA)
FOSFA - The Federation of Oils, Seeds and Fats Associations
GHS - Globally Harmonized System of Classification and Labelling of Chemicals
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association Dangerous Goods Regulations
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO - International Civil Aviation Organisation
ICL - In Commerce List (Canada)
IDLH - Immediately Dangerous to Life or Health
IMDG - International Maritime Dangerous Goods Code
IMO - International Maritime Organization
IUB - International Union of Biochemistry and Molecular Biology
KECL - Korean Existing and Evaluated Chemical Substances (Korea)
Known - Known Carcinogen
LC50 - Lethal concentration that produces fatalities in 50% of a given test population
LD50 - Median lethal dose of a given test population
Marpol - International Convention for the Prevention of Pollution From Ships
MEPC - Marine Environment Protection Committee
MEX - NOM-002-SCT/2003 List of Hazardous Substances and Materials Most Commonly Transported
MEXICO - Mexico Occupational Exposure Limits
NDSL - Non Domestic Substances List (Canada)
NFPA - National Fire Protection Association
NIOSH - National Institute of Occupational Safety and Health
NOAEL - No Observed Adverse Effect Level
NTP - National Toxicology Program
NZIoC - New Zealand Inventory of Chemicals (New Zealand)
OECD - Organisation for Economic Co-operation and Development
OSHA - Occupational Safety & Health Administration
OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limits
PICCS - Inventory of Chemicals and Chemical Substances (Philippines)
PNEC - Predicted No-Effect Concentration
Present - Carcinogen or potential carcinogen to be identified under OSHA's Hazard Communication Standard
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
SEN - Sensitizer notation. May reflect risk of dermal and/or inhalation sensitization (consult ACGIH documentation).
Skin notation - Potential for cutaneous absorption
STEL - Short Term Exposure Limit: Concentrations that should not be exceeded except for short periods of time (usually 15-minutes)
STOT - Specific Target Organ Toxicity
STV - Short Term Value (same as STEL)
TDG - Transportation of Dangerous Goods (Transport Canada)
TSCA - Toxic Substances Control Act, Section 8(b) Inventory (USA)
TWA - Time Weighted Average: Average concentration that should not be exceeded during a work day (usually 8-hours)
Under Consideration - Under Consideration by the National Toxicology Program
vPvB - Very Persistent and Very Bioaccumulative
WHMIS - Workplace Hazardous Materials Information System

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

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