



Safety Data Sheet

Original Preparation Date: 06-May-2010

Revision Date: 07-Jun-2016

Revision Number: 2

1. Identification

Product Name:

ADM L-Lysine HCL

Synonyms:

AAFCO: 6.11 L Lysine Monohydrochloride IFN: 5-19-118

Product Code:

035150, 035155

Use of the Substance / Preparation:

Animal Feed

Contact Manufacturer:

Archer Daniels Midland Company

4666 Faries Parkway

Decatur, IL 62526, USA

Telephone Number: (+1) 217-424-5200

Emergency response telephone number:

Chemtrec 1-800-424-9300 (CCN 1635)

2. Hazard(s) identification

Emergency Overview

Warning. May form combustible dust concentrations in air (during processing and handling). Product dust may cause mild, mechanical irritation.

Appearance

Tan

Physical State

Granules

Odor

Slight fermentation odor

This product IS classified as hazardous according to the criteria contained in the Hazard Communication Standard 29 CFR 1910.1200 (known as HCS 2012) and the Hazardous Products Regulations SOR/2015-17 (known as WHMIS 2015).

OSHA Defined Hazard(s)	Combustible Dust
HPR Defined Hazard(s)	Combustible Dust

Signal Word:	Warning
Hazard Statement(s):	May form combustible dust concentrations in air (during processing and handling)

3. Composition/information on ingredients

Chemical nature of the preparation Substance

Common Name L-lysine monohydrochloride

Molecular Formula C₆ H₁₄ N₂ O₂ - HCl

Non-hazardous Components

Chemical Name	CAS-No	Weight %	North American Substance Hazard Class
L-Lysine monohydrochloride	657-27-2	100	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 Dust may cause mechanical irritation to eyes resulting in redness or watering.

Skin Product dust may cause mild, mechanical irritation.

Inhalation Dust may cause irritation of respiratory tract. See section 8 of this sheet for exposure limits pertaining to nuisance dust or "particulates not otherwise regulated".

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

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

Risk of ignition followed by flame propagation or secondary explosions should be prevented by avoiding accumulation of dust, e.g. on floors and ledges. As with most organic solids, combustion is possible at elevated temperatures or by contact with an ignition source. Fine dust dispersed in air may ignite.

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), HCl.

Specific Hazards Arising from the Chemical None known.

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge Yes. (as dust).

Further information Dust explosibility class = 1 [Kst value (bar-m/sec) = 140]. Weak to moderately explosible.

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

Avoid dust formation. Use personal protective equipment. For personal protection see section 8.

Environmental Precautions

Prevent further leakage or spillage if safe to do so.

Methods and Materials for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal. For disposal information see section 13.

7. Handling and storage

Handling

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Avoid dust formation in confined areas. Fine dust dispersed in air may ignite. Refer to NFPA 61, "Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities".

Storage

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

8. Exposure controls/Personal protection

Exposure Limits

Where exposure limits have not been established for specific components of this material, please observe the OSHA and ACGIH established limits for particulates not otherwise classified (PNOC). OSHA PEL: [15 mg/m³ (total dust) 8-hr TWA], [5 mg/m³ (respirable) 8-hr TWA]. ACGIH TLV: [10 mg/m³ (inhalable) 8-hr TWA], [3 mg/m³ (respirable) 8-hr TWA].

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. Apply technical measures to comply with the occupational exposure limits. However it is the duty of the user to verify this and follow given exposure limits at the workplace.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

Personal Protective Equipment

Eye/face Protection.

If exposed to airborne dust, appropriate safety glasses with side-shields or safety goggles are recommended. If airborne dust concentrations are excessive, wear goggles.

Skin and Body Protection

Protective clothing and gloves may be worn to reduce the potential of mechanical irritation.

Respiratory Protection

If exposed to airborne dust, use appropriate NIOSH approved (or equivalent) respiratory protection.



9. Physical and chemical properties

Appearance	Tan
Physical State	Granules
Odor	Slight fermentation odor
Odor Threshold	No information available
pH	Neutral (aqueous solution)
Flash Point	Not applicable
Autoignition Temperature	No data available
Boiling point	Not applicable
Melting/Freezing Point	Approx. 260 °C / 500 °F
Decomposition temperature	No information available
Oxidizing Properties	No information available
Flammability Limits in Air	No information available
Explosion Limits	No information available
Water Solubility	Soluble (500-600 g/liter in H ₂ O at 25°C)
Solubility(ies)	Insoluble in: Alcohol. and Ether.
Evaporation Rate	Not applicable Not applicable
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Specific Gravity / Relative Density	No information available
Viscosity (kinematic)	No information available

Partition Coefficient (n-octanol/water) No information available

10. Stability and reactivity

Stability Stable under normal conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to Avoid Heat, flames and sparks. Avoid conditions that generate dust.

Incompatible Materials No materials to be especially mentioned.

Hazardous Decomposition Products Thermal decomposition may lead to release of. Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x). HCl.

11. Toxicological information

Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.			
Chemical Name	Weight %	LD50 Oral	LD50 Dermal	LC50 Inhalation
L-Lysine monohydrochloride	100	10,000 mg/kg (rat)		Practically non-toxic

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 Dust may cause mechanical irritation to eyes resulting in redness or watering.
Skin Product dust may cause mild, mechanical irritation.
Inhalation Dust may cause irritation of respiratory tract. See section 8 of this sheet for exposure limits pertaining to nuisance dust or "particulates not otherwise regulated".
Ingestion Not for human consumption. May be harmful if swallowed.

12. Ecological information

Ecotoxicity

Component Information:.

Chemical Name	Fresh Water Algae	Acute Fish Toxicity	Daphnia (Water flea)	Effects on micro-organisms	Other
L-Lysine monohydrochloride	EC50 (72h): >100mg/L (Pseudokirchneriella subcapitata)	LC50 (96h): >103mg/L (Oryzias latipes)	EC50 (48h): >106mg/L		

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

Can be landfilled or incinerated, when in compliance with local regulations. Dispose of in compliance with the laws and regulations pertaining to this product in your jurisdiction.

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
L-Lysine monohydrochloride	Yes	Yes	No	No	Yes 211-519-9	No	Yes

Chemical Name	ENCs ISHL	CHINA	PICCS	KECL	Taiwan	Turkey	NZIoC
L-Lysine monohydrochloride	Yes (9)-1633,(1)-215	Yes	Yes	Yes Annex 1 (KE-22666)	Yes	Yes 211-519-9	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

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	Yes (when in the form of combustible dust)
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.

Chemical Name	Weight %	Massachusetts	Minnesota	New Jersey	Pennsylvania
L-Lysine monohydrochloride	100	No	No	No	No

Canada**(NPRI) Canadian National Pollutant Release Inventory**

No known component is listed on NPRI.

Mexico

Mexico - Grade

Slight risk, Grade 1

16. Other information

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Revision Number: 2
Reason for revision: New SDS format. This version replaces all previous versions.

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.

End of sheet