



(Material) Safety Data Sheet

Transport Symbol(s)	WHMIS	NFPA	Personal Protective Equipment
Not controlled	Not controlled		

Original Preparation Date: 24-Aug-2009

Revision Date: 05-Jun-2015

Revision Number: 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name:
ADM L-Threonine 98.5%

Product Code:
035600

Synonyms:
l-2-Amino-3-hydroxybutyric acid, L-Thr, IFN: 5-08-092

Contact Manufacturer:
Archer Daniels Midland Company
4666 Faries Parkway
Decatur, IL 62526, USA

Use of the Substance / Preparation:
Animal Feed

Telephone Number: (+1) 217-424-5200
Emergency response telephone number:
Chemtrec 1-800-424-9300 (CCN 1635)

2. HAZARDS IDENTIFICATION

Emergency Overview

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

Appearance
White

Physical State
Granules

Odor
Fermentation

Classification according to 29 CFR 1910, amended to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS):

OSHA Defined Hazard(s) Combustible Dust

OSHA / GHS Label Elements

Signal Word: Warning

Hazard Statement(s): May form combustible dust concentrations in air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name L-Threonine
Chemical Family Amino acid

Non-hazardous Components

Chemical Name	CAS-No	Weight %	North American Hazard Indicator
L-Threonine	72-19-5	98.5	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. Health injuries are not known or expected under normal use.

Main Symptoms Repeated or prolonged exposure may cause irritation of eyes and skin. Inhalation of dust may cause breathing difficulties.

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

Fine dust dispersed in air may ignite. 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.

Extinguishing media

Suitable Extinguishing Media Water. Foam. Carbon dioxide (CO₂). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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 Yes. (as dust).

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.

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.

7. HANDLING AND STORAGE**Handling**

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

Storage

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Limits**

Chemical Name	ACGIH TLV	OSHA PEL	Mexico	NIOSH
Particulates not otherwise regulated	TWA: 10 mg/m ³ inhalable particles, recommended TWA: 3 mg/m ³ respirable particles, recommended	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction	not listed	not listed

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.

Skin and Body Protection**Respiratory Protection**

Protective clothing and gloves may be worn to reduce the potential of mechanical irritation. If exposed to airborne dust, use appropriate NIOSH approved (or equivalent) respiratory protection.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	White
Physical State	Granules
Odor	Fermentation
Odor Threshold	No information available
pH	Neutral (10 g/l H ₂ O)
Flash Point	No data available Not applicable
Autoignition Temperature	No data available
Boiling point	Not applicable
Melting/Freezing Point	Approx. 256 °C / 493 °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 90.3 g/l
Solubility(ies)	Insoluble in: Alcohol. Ether. and Chloroform
Evaporation Rate	Not applicable
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Density	45-50 lbs/cu. ft.
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).

11. TOXICOLOGICAL INFORMATION**Information on toxicological effects**

Acute toxicity	Based on available data, no evidence of acute toxicity.
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 classified.
Carcinogenicity	No evidence of carcinogenicity.
Reproductive toxicity	Not classified
STOT - single exposure	No evidence of toxicity.
STOT - repeated exposure	No evidence of toxicity.
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. Health injuries are not known or expected under normal use.
Main Symptoms	Repeated or prolonged exposure may cause irritation of eyes and skin. Inhalation of dust may cause breathing difficulties.

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.

Persistence/Degradability	No information available.
Mobility	Soluble in water

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.
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).

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	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**California Proposition 65**

This product is not known to contain chemicals listed under Proposition 65.

State Right-to-Know

No known components subject to "Right-To-Know" legislation in the following States.

Chemical Name	Weight %	Massachusetts	Minnesota	New Jersey	Pennsylvania
L-Threonine	98.5	No	No	No	No

Canada**WHMIS Product Classification**

Not a WHMIS controlled product.

WHMIS Ingredient Disclosure List IDL

No known component is listed on the WHMIS ingredients disclosure list.

(NPRI) Canadian National Pollutant Release Inventory

No known component is listed on NPRI.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

Mexico

Mexico - Grade

Minimum risk, Grade 0

16. OTHER INFORMATION

Prepared By:	ADM Bio-Products
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Reason for revision:	This data sheet contains changes from the previous version in section(s) 2, 15. This version replaces all previous versions.

Abbreviations and acronyms

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Values
 AICS - Australian Inventory of Chemical Substances (Australia)
 CAS - Chemical Abstract Service
 CHINA - Chinese Inventory of Existing Chemical Substances (China)
 DOT - U.S. Department of Transportation
 DSL - Domestic Substance List (Canada)
 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)
 GHS - Globally Harmonized System of Classification and Labelling of Chemicals
 IATA - International Air Transport Association Dangerous Goods Regulations
 ICAO - International Civil Aviation Organisation
 ICL - In Commerce List (Canada)
 IMDG - International Maritime Dangerous Goods Code
 IMO - International Maritime Organization
 KECL - Korean Existing and Evaluated Chemical Substances (Korea)
 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
 NZIoC - New Zealand Inventory of Chemicals (New Zealand)
 OSHA - Occupational Safety & Health Administration
 OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limits
 PICCS - Inventory of Chemicals and Chemical Substances (Philippines)
 SEN - Sensitizer notation. May reflect risk of dermal and/or inhalation sensitization (consult ACGIH documentation).
 STOT - Specific Target Organ Toxicity
 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)
 WHMIS - Workplace Hazardous Materials Information System

The information provided on this (M)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

