



# (Material) Safety Data Sheet

Transport Symbol	WHMIS	NFPA	Personal Protective Equipment
Not controlled	Not controlled		

Original Preparation Date: 24-Aug-2009

Revision Date: 21-Aug-2013

Revision Number: 1

## 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

**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. 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):

Hazards Not Otherwise Classified | 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** 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 (CO<sub>2</sub>). 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 (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>).

**Specific Hazards Arising from the Chemical** None known.

**Chemical**

**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**

Avoid dust formation.

**Environmental Precautions**

Prevent further leakage or spillage if safe to do so.

**Methods for Clean-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 <sup>3</sup> inhalable particles, recommended TWA: 3 mg/m <sup>3</sup> respirable particles, recommended	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction	not listed	not listed

### Engineering Measures

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

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

<b>Appearance</b>	White
<b>Physical State</b>	Granules
<b>Odor</b>	Fermentation
<b>Odor Threshold</b>	No information available
<b>pH</b>	Neutral (10 g/l H <sub>2</sub> O)
<b>Flash Point</b>	No data available Not applicable
<b>Autoignition Temperature</b>	No data available
<b>Boiling point</b>	Not applicable
<b>Melting/Freezing Point</b>	Approx. 256 °C / 493 °F
<b>Decomposition temperature</b>	No information available
<b>Oxidizing Properties</b>	No information available
<b>Flammability Limits in Air</b>	No information available
<b>Explosion Limits</b>	No information available
<b>Water Solubility</b>	Soluble 90.3 g/l
<b>Solubility(ies)</b>	Insoluble in: Alcohol. Ether. and Chloroform
<b>Evaporation Rate</b>	Not applicable
<b>Vapor Pressure</b>	Not applicable
<b>Vapor Density</b>	Not applicable
<b>Density</b>	45-50 lbs/cu. ft.
<b>Partition Coefficient (n-octanol/water)</b>	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 (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>).

## 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

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

### Potential health effects

<b>Eyes</b>	Dust may cause mechanical irritation to eyes resulting in redness or watering.
<b>Skin</b>	Product dust may cause mild, mechanical irritation.
<b>Inhalation</b>	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".
<b>Ingestion</b>	Not for human consumption. Health injuries are not known or expected under normal use.
<b>Main Symptoms</b>	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.

<b>Persistence/Degradability</b>	No information available.
<b>Mobility</b>	Soluble in water

## 13. DISPOSAL CONSIDERATIONS

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

<b>Waste Disposal Methods</b>	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.
<b>Contaminated Packaging</b>	Empty containers should be decontaminated and taken for local recycling, recovery or waste disposal.

<b>14. TRANSPORT INFORMATION</b>
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**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

<b>15. REGULATORY INFORMATION</b>
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**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**

<b>Acute Health Hazard</b>	No
<b>Chronic Health Hazard</b>	No
<b>Fire Hazard</b>	No
<b>Sudden Release of Pressure Hazard</b>	No
<b>Reactive Hazard</b>	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**

Proposition 65 chemicals are not expected to be found in this product above those naturally present in their agricultural source. Proposition 65 exempts naturally occurring listed chemicals from an obligation to label.

**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  
**Original Preparation Date:** 24-Aug-2009  
**Revision Date:** 21-Aug-2013  
**Revision Number:** 1  
**Reason for revision:** New SDS format. 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