

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

MSDS Name: Ammonium citrate dibasic
Catalog Numbers: AC611160025, AC611165000, A663-212, A663-500
Synonyms: Ammonium monohydrogen citrate; Citric acid diammonium salt; Diammonium citrate; Diammonium hydrogen citrate; Dibasic ammonium citrate.
Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 3012-65-5
Chemical Name: Ammonium citrate dibasic
%: 100
EINECS#: 221-146-3
Hazard Symbols:
Risk Phrases:

Text for R-phrases: see Section 16

Hazard Symbols: XI



Risk Phrases: 36/37/38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Causes eye, skin, and respiratory tract irritation. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Causes skin irritation.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation: Causes respiratory tract irritation.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water.

Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. For methemoglobinemia, administer oxygen alone or with Methylene Blue depending on the methemoglobin concentration in the blood. Cleansing of the entire contaminated area of the body is of utmost importance.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: Use agent most appropriate to extinguish fire. Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.

Autoignition: Not applicable.

Temperature:

Flash Point: Not applicable.

Explosion: Not available

Limits: Lower:

Explosion: Not available

Limits: Upper:

NFPA Rating: health: 2; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ammonium citrate di- listed basic	none listed	none listed	none
Ammonia	25 ppm; 35 ppm	25 ppm TWA; 18	50 ppm

TWA; 35				STEL		mg/m3 TWA 300		mg/m3
TWA						ppm IDLH		
+-----+-----+-----+-----+								
+-----+								

OSHA Vacated PELs: Ammonium citrate dibasic: None listed Ammonia: None listed

Personal Protective Equipment

- Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin:** Wear appropriate gloves to prevent skin exposure.
- Clothing:** Wear appropriate protective clothing to prevent skin exposure.
- Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Color: white
Odor: ammonia-like - weak odor
pH: 4.8-5.3 (5% soln)
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: Decomposes.
Decomposition Temperature: Not available
Solubility in water: Soluble in water.
Specific Gravity/Density: 1.5
Molecular Formula: (NH4)2C6H6O7
Molecular Weight: 226.1072

Section 10 - Stability and Reactivity

- Chemical Stability:** Stable under normal temperatures and pressures.
- Conditions to Avoid:** Incompatible materials, dust generation, excess heat, strong oxidants.
- Incompatibilities with Other Materials** Not available
- Hazardous Decomposition Products** Carbon monoxide, carbon dioxide, nitrogen oxides (NOx) and ammonia (NH3).
- Hazardous Polymerization** Has not been reported.

Section 11 - Toxicological Information

- RTECS#:** CAS# 3012-65-5: None listed
CAS# 7664-41-7: BO0875000
- LD50/LC50:** RTECS: Not available. RTECS:
CAS# 7664-41-7: Inhalation, mouse: LC50 = 4230 ppm/1H;
 Inhalation, mouse: LC50 = 4600 mg/m3/2H;
 Inhalation, rabbit: LC50 = 7 gm/m3/1H;
 Inhalation, rat: LC50 = 2000 ppm/4H;
 Inhalation, rat: LC50 = 18600 mg/m3/5M;
 Inhalation, rat: LC50 = 7040 mg/m3/30M;

Skin, rat: LD50 = 112000 mg/m3/15M;
Skin, rat: LD50 = 71900 mg/m3/30M;
Skin, rat: LD50 = 4840 mg/m3/60M;

Carcinogenicity: Ammonium citrate dibasic - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Ammonia - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive: No information found

Neurotoxicity: No information found

Mutagenicity: No information found

Other: Not available

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. RCRA P-Series: None listed. RCRA U-Series: None listed.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated as a hazardous material

Hazard Class:

UN Number:

Packing Group:

Canada TDG

Shipping Name: Not available

Hazard Class:

UN Number:

Packing Group:

USA RQ: CAS# 3012-65-5: 5000 lb final RQ; 2270 kg final RQ

USA RQ: CAS# 7664-41-7: 100 lb final RQ; 45.4 kg final RQ

Section 15 - Regulatory Information

US Federal

TSCA

CAS# 3012-65-5 is listed on the TSCA Inventory.

CAS# 7664-41-7 is listed on the TSCA Inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 3012-65-5: 5000 lb final RQ; 2270 kg final RQ CAS# 7664-41-7: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302

CAS# 7664-41-7: 500 lb TPQ

Extremely Hazardous Substances

Section 313

This chemical is not at a high enough concentration to be reportable under Section 313. No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 3012-65-5 is listed as a Hazardous Substance under the CWA. CAS# 7664-41-7 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

STATE

Ammonium citrate dibasic can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts. Ammonia can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No

None of the chemicals in this product are listed.

Significant Risk Level:

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Xi

Risk Phrases:

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)

CAS# 3012-65-5: 1

CAS# 7664-41-7: 2

Canada

CAS# 3012-65-5 is listed on Canada's DSL List

CAS# 7664-41-7 is listed on Canada's DSL List

Canadian WHMIS Classifications: Not controlled.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 3012-65-5 is not listed on Canada's Ingredient Disclosure List.

CAS# 7664-41-7 is listed on Canada's Ingredient Disclosure List

Section 16 - Other Information

MSDS Creation Date: 12/12/1997

Revision #5 Date 3/04/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost

profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.