

MSDS# 04380

Section 1 - Chemical Product and Company Identification

MSDS Name: Ammonium cerium(IV) nitrate

Catalog Numbers: AC201440000, AC201440010, AC201441000, AC201442500, AC423540000, AC423540250  
AC423540250, AC423541000, AC423545000, C248-500

Synonyms: Ceric ammonium nitrate; CAN.

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

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CAS#: 16774-21-3  
Chemical Name: Ammonium cerium(IV) nitrate  
%: 98+  
EINECS#: 240-827-6  
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Hazard Symbols:

XN O



Risk Phrases:

22 36/37/38 41 8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Strong oxidizer. Contact with other material may cause a fire. Harmful if swallowed. Eye contact may result in permanent eye damage. Causes eye, skin, and respiratory tract irritation. Target Organs: Blood, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Risk of serious damage to eyes.

Skin: Causes skin irritation. May be harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. Ingestion of nitrate containing compounds can lead to methemoglobinemia.

Inhalation: Causes respiratory tract irritation. May be harmful if inhaled. Inhalation of high concentrations of ammonia vapors may cause shortness of breath, bronchospasm, chest pain and pulmonary edema which may be fatal.

Chronic: May cause methemoglobinemia, which is characterized by chocolate-brown colored blood, headache, weakness, dizziness, breath shortness, cyanosis (bluish skin due to deficient oxygenation of blood), rapid heart rate, unconsciousness and possible death.

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. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Call a poison control center.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician: Treat symptomatically and supportively.

### 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. Exposure to heat may promote violent decomposition. Strong oxidizer. Contact with other material may cause fire. Dangerous fire hazard in the form of dust when exposed to heat or flame.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available.

Flash Point: Not available

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: ; instability: OX

### 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. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Keep combustibles (wood, paper, oil, etc.,) away from spilled material. Do not let this chemical enter the environment.

### Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood. Keep from contact with clothing and other combustible materials.

Storage: Do not store near combustible materials. Store in a tightly closed container. Do not store in metal containers. Store in a cool, dry, well-ventilated location. Separate from combustible materials, halogens, sulfides, metals. See also NFPA 430, Code for the Storage of Liquid and Solid Oxidizers. Keep away from alkalis, oxidizable materials, finely divided metals, alcohols, and permanganates.

### Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ammonium cerium(IV) nitrate	none listed	none listed	none listed

OSHA Vacated PELs: Ammonium cerium(IV) nitrate: None listed

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

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 protective 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: Crystalline powder

Color: orange

Odor: slightly pungent

pH: 1 (50 g/L aq.sol.(20°C))

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: Not available

Freezing/Melting Point: 107 - 108 deg C

Decomposition Temperature:

Solubility in water: 1410 g/L @ (20°C)

Specific Gravity/Density: Not available.

Molecular Formula:  $Ce(NO_3)_4 \cdot 2NH_4NO_3$

Molecular Weight: 548.22

#### Section 10 - Stability and Reactivity

Chemical Stability: Decomposes when heated. Stable, however, may violently decompose at temperatures above 175°C.

Conditions to Avoid: Incompatible materials, dust generation, excess heat, combustible materials, exposure to moist air or water, temperatures above 85°C.

Incompatibilities with Other Materials: Reducing agents, acids, bases, finely powdered metals, phosphorus, hypophosphites, tin chloride, organic materials, thiocyanates, isothiocyanates, combustible materials, cyanides, Reactions with heavy metals may form explosive substances..

Hazardous Decomposition Products: Nitrogen oxides (NO<sub>x</sub>) and ammonia (NH<sub>3</sub>), metallic oxides.

Hazardous Polymerization: Will not occur.

#### Section 11 - Toxicological Information

RTECS#: CAS# 16774-21-3: None listed

LD50/LC50: RTECS: Not available. Other: Oral Rat LD50: >200-2000mg/kg, Oral Rat LD50: 1600-3200mg/kg, Irritation eye rabbit: Severe irritation

Carcinogenicity: Ammonium cerium(IV) nitrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: The toxicological properties have not been fully investigated.

#### Section 12 - Ecological Information

Ecotoxicity: Daphnia: Water Flea: >100mg/L; 48Hrs.

Other: Do not empty into drains.

#### Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

#### Section 14 - Transport Information

US DOT

Shipping Name: OXIDIZING SOLID, TOXIC, N.O.S.

Hazard Class: 5.1

UN Number: UN3087

Packing Group: II

Canada TDG  
Shipping Name: NITRATES, INORGANIC NOS (AMMONIUM CERIUM NITRATE)  
Hazard Class: 5.1  
UN Number: UN1477  
Packing Group: II

## Section 15 - Regulatory Information

### European/International Regulations

#### European Labeling in Accordance with EC Directives

Hazard Symbols: XN O

Risk Phrases:

- R 22 Harmful if swallowed.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 41 Risk of serious damage to eyes.
- R 8 Contact with combustible material may cause fire.

Safety Phrases:

- S 17 Keep away from combustible material.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 37/39 Wear suitable gloves and eye/face protection.

#### WGK (Water Danger/Protection)

CAS# 16774-21-3: 1

#### Canada

CAS# 16774-21-3 is listed on Canada's DSL List

Canadian WHMIS Classifications: C, F, D1B, D2B

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# 16774-21-3 is not listed on Canada's Ingredient Disclosure List.

#### US Federal

##### TSCA

CAS# 16774-21-3 is listed on the TSCA Inventory.

## Section 16 - Other Information

MSDS Creation Date: 4/12/1999

Revision #9 Date 7/20/2009

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.

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