Material Safety Data Sheet
Ceric ammonium nitrate

ACC# 04380

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Ceric ammonium nitrate
**Catalog Numbers:** AC201440000, AC201441000, AC201442500, AC423540000, AC423540250, AC423540500, AC423541000, AC423545000, C248-500
**Synonyms:** Ammonium cerium(IV) nitrate; Diammonium hexanitratocerate; CAN; Cerium(IV) ammonium nitrate; Ammonium hexanitratocerate(IV); Ammonium nitratocerate(IV); catalyst for polymerization of olefins.

**Company Identification:**
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16774-21-3</td>
<td>Ceric ammonium nitrate</td>
<td>&gt;98.5</td>
<td>240-827-6</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: yellow-orange crystals.
**Danger!** Strong oxidizer. Contact with other material may cause a fire. Causes eye, skin, and respiratory tract irritation. Harmful if swallowed.
**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 gastrointestinal irritation with nausea, vomiting and diarrhea. 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. May cause methemoglobinemia.
**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. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

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

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:** May require flooding with water in order to eliminate hazardous reactions since the materials generate their own oxygen.

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 2; Flammability: 0; Instability: 1; Special Hazard: 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. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Keep combustibles (wood, paper, oil, etc.,) away from spilled material.

Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Wash clothing before reuse. Avoid breathing dust. Inform laundry personnel of contaminant's hazards.

**Storage:** Do not store near combustible materials. Store in a tightly closed container. Keep away from reducing agents. 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 alkalies, oxidizable materials, finely divided metals, alcohols, and permanganates.

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**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceric ammonium nitrate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Ceric ammonium nitrate: No OSHA Vacated PELs are listed for this chemical.

**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: Crystals
Appearance: red-orange - yellow-orange
Odor: odorless
pH: Not available.
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: Not available.
Solubility: 142.6% @ 25°C in water.
Specific Gravity/Density: Not available.
Molecular Formula: Ce(NO3)4.2NH4NO3
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: Dust generation, excess heat, temperatures above 85°C, heating in a confined space.
Incompatibilities with Other Materials: Reducing agents, organic materials, combustible materials.
Hazardous Decomposition Products: Nitrogen oxides (NOx) and ammonia (NH3), metallic oxides.
Hazardous Polymerization: Has not been reported

Section 11 - Toxicological Information

RTECS#: CAS# 16774-21-3 unlisted.
LD50/LC50:
Not available.
Oral Rat LD50: >200-2000mg/kg, Oral Rat LD50: 1600-3200mg/kg, Irritation eye rabbit: Severe irritation
Carcinogenicity:
CAS# 16774-21-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Daphnia: Water Flea: >100mg/L; 48Hrs.; No data available.
Environmental: Will not bio-accumulate.
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

<table>
<thead>
<tr>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipping Name:</strong></td>
<td>NITRATES, INORGANIC, N.O.S.</td>
</tr>
<tr>
<td><strong>Hazard Class:</strong></td>
<td>5.1</td>
</tr>
<tr>
<td><strong>UN Number:</strong></td>
<td>UN1477</td>
</tr>
<tr>
<td><strong>Packing Group:</strong></td>
<td>II</td>
</tr>
</tbody>
</table>

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 16774-21-3 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
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS # 16774-21-3: immediate, fire.

Section 313
This material contains Ceric ammonium nitrate (listed as Water Dissociable Nitrate Compounds), >98.5%, (CAS# 16774-21-3) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
This material does not contain any hazardous air pollutants.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances 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:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 16774-21-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California Prop 65
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
   XI 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 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

WGK (Water Danger/Protection)
   CAS# 16774-21-3: 1

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

Canada - WHMIS
   This product has a WHMIS classification of C, 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.

Canadian Ingredient Disclosure List
   CAS# 16774-21-3 is not listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/12/1999
Revision #6 Date: 4/27/2007

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 Fisher 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, however arising, even if Fisher has been advised of the possibility of such damages.