

SAFETY DATA SHEET

Preparation Date: 9/16/2015

Revision Date: 9/16/2015

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: C1198
Product Name: CERIC AMMONIUM NITRATE, REAGENT, ACS

Other means of identification

Synonyms: Ammonium hexanitratocerate(IV)
 Diammonium Hexanitratocerate
 Ammonium Cerium (IV) Nitrate
CAS #: 16774-21-3
RTECS # Not available
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Oxidizing solids	Category 3

Label elements

Warning

Hazard statements

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May intensify fire; oxidizer



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing/ .? /combustible materials
Take any precaution to avoid mixing with combustibles .?
Wear protective gloves
Wear eye/face protection

Precautionary Statements - Response

Specific treatment (see .? on this label)

IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO₂ or Halon may provide limited control.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Components	CAS-No.	Weight %	Trade Secret
Ceric Ammonium Nitrate 16774-21-3	16774-21-3	100	*

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eye with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms

Causes skin irritation. Causes serious eye irritation. Symptoms may include redness, itching, and pain of the skin and eyes. Irritating to respiratory system. Causes digestive (gastrointestinal) tract irritation. May cause abdominal pain, nausea, vomiting, diarrhea. May cause methemoglobinemia and cyanosis. May affect the cardiovascular system. May cause central nervous system effects.

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media:

Dry chemical. Foam. Halons.

Specific hazards arising from the chemical

Hazardous Combustion Products:

No information available.

Specific hazards:

Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.)
The product is not flammable, but it may cause fire when in contact with other material
Contact with combustible or organic materials may cause fire
Will accelerate burning when involved in a fire
Container explosion may occur under fire conditions or when heated

Special Protective Actions for Firefighters

Specific Methods: For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice. Keep away from combustible material.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Do not store near combustible materials. Store in a segregated and approved area. Deliquescent.

Incompatible Materials:

Reducing agents. Organic materials. Combustible materials. Aluminum.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Ceric Ammonium Nitrate 16774-21-3	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Ceric Ammonium Nitrate 16774-21-3	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
Ceric Ammonium Nitrate 16774-21-3	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Safety glasses with side-shields or Goggles
- Skin and body protection:** Chemical resistant apron. Gloves. Long sleeved clothing.
- Respiratory protection:** Effective dust mask. or. Wear respirator with dust filter.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Solid.	Appearance: Crystals.	Color: Yellow. Yellow-orange.
Odor: Odorless.	Taste No information available	Molecular/Formula weight: 548.22
Formula: (NH ₄) ₂ Ce(NO ₃) ₆	Flammability: No information available	Flash point (°C): No data available
Flashpoint (°C/°F): No information available.	Flash Point Tested according to: Closed cup	Autoignition Temperature (°C/°F): No information available
Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available	pH: No information available
Melting point/range(°C/°F): 107-108°C/224/6-226.4°F	Boiling point/range(°C/°F): No information available	Bulk density: No information available
Decomposition temperature(°C/°F): >87°C/>188.6°F	Density (g/cm³): No information available	Specific gravity: No information available
Vapor pressure @ 20°C (kPa): No information available	Evaporation rate: No information available	Vapor density: No information available
VOC content (g/L): No information available	Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): No information available
Viscosity: No information available	Miscibility: No information available	Solubility: Easily soluble in cold water Easily soluble in hot water Soluble in dilute acids Solubility in Water: 141 g/100 ml water @25 deg. C

10. STABILITY AND REACTIVITY

Reactivity

Slowly decomposes to ceric oxide at temperatures above 87 deg. C
Also incompatible with powdered aluminum, boron phosphide, cyanides, esters, phospham, phosphorus, sodium cyanide, sodium hypophosphite, stannous chloride, thiocyanates

Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Reducing agents. Organic materials. Combustible materials. Aluminum.

Hazardous decomposition products: No information available

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Inhalation. Skin.

Acute Toxicity

Component Information

Ceric Ammonium Nitrate - 16774-21-3

LD50/oral/rat = No information available

LD50/oral/mouse = No information available

LD50/dermal/rat = No information available

LD50/dermal/rabbit = No information available

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =

Value - Acute Tox Oral = No information available

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:

Causes skin irritation. Symptoms may include redness, itching and pain.

Eye Contact:

Causes serious eye irritation. Symptoms may include redness, itching and pain.

Inhalation

Irritating to respiratory system. Symptoms may include coughing and shortness of breath.

Ingestion

Ingestion of large doses of nitrates causes gastrointestinal tract irritation with nausea, vomiting, abdominal cramps, diarrhea (possibly bloody, from gastrointestinal hemorrhage). Under some circumstances, when the nitrate is converted by bacteria in the stomach to nitrite, it may also cause methemoglobinemia, cyanosis (a bluish discoloration of the skin due to deficient oxygenation of the blood), convulsions and death. Methemoglobinemia is characterized by dizziness, weakness, fatigue, convulsions (seizures), drowsiness, headache, shortness of breath, cyanosis, rapid heart rate (tachycardia) or slow heart rate (bradycardia), hypotension, chocolate brown colored blood, unconsciousness..

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Ceric Ammonium Nitrate	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available

STOT - repeated exposure No information available

Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Ceric Ammonium Nitrate	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (ceric ammonium nitrate)
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
ERG No: 140
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Symbol(s): G

TDG (Canada)

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

ADR

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A

14. TRANSPORT INFORMATION

MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

IATA

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 5L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Ceric Ammonium Nitrate</i>	Present	Present KE-09797	Present	Present (1)-626	Present	Present	Present 240-827-6

U.S. Regulations

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Ceric Ammonium Nitrate</i>	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
Ceric Ammonium Nitrate	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Ceric Ammonium Nitrate	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

C Oxidizing materials

Ceric Ammonium Nitrate

C

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
Ceric Ammonium Nitrate	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Ceric Ammonium Nitrate	Not listed	Not listed

EU Classification

R-phrase(s)

R 8 - Contact with combustible material may cause fire.
R36/37/38 - Irritating to eyes, respiratory system and skin.

S -phrase(s)

S17 - Keep away from combustible material.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 - Wear suitable gloves and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
Ceric Ammonium Nitrate		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

O - Oxidising.
Xi - Irritant.



16. OTHER INFORMATION

Preparation Date: 9/16/2015
Revision Date: 9/16/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet