

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Perihalan Produk: **Ammonium cerium(IV) nitrate**  
 Product Description: **Ammonium cerium(IV) nitrate**  
 Cat No. : 423540000; 423540250; 423540500; 423541000; 423545000  
 Synonyms Ceric ammonium nitrate; CAN  
 CAS No 16774-21-3  
 Molecular Formula H8 Ce N8 O18

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Details of the supplier of the safety data sheet**
**Company**

Fisher Scientific (M) Sdn Bhd No. 3, Jalan Sepadu 25/123,  
 Taman Perindustrian Axis, Seksyen 25,  
 40400 Shah Alam, Selangor Darul Ehsan, Malaysia.  
 Tel: +03-5525 7888  
 Fax: +603 51257978.

E-mail address Enquiry.my@thermofisher.com

**Emergency Telephone Number**

Tel: +03-5525 7888  
 CHEMTREC Malaysia 1-800-815-308 (Malay)  
 CHEMTREC Malaysia (Kuala Lumpur) +(60)-327884561 (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

	Oxidizing solids
Category 2 (H272)	Substances/mixtures corrosive to metal
Category 1 (H290)	
Acute oral toxicity	Category 4 (H302)
Skin Corrosion/Irritation	Category 1 C (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Skin Sensitization	Category 1 (H317)
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

**Label Elements**

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Signal Word

Danger

## Hazard Statements

- H272 - May intensify fire; oxidizer
- H290 - May be corrosive to metals
- H302 - Harmful if swallowed
- H314 - Causes severe skin burns and eye damage
- H317 - May cause an allergic skin reaction
- H410 - Very toxic to aquatic life with long lasting effects

## Precautionary Statements

- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P220 - Keep away from clothing and other combustible materials
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

## Other Hazards

- Toxic to terrestrial vertebrates
- This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Cerate(2-), hexakis(nitrato-O)-, diammonium, (OC-6-11)-	16774-21-3	<100

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

#### Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

#### Ingestion

Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled

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the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

## Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

## Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. May cause methemoglobinemia.

## Indication of any immediate medical attention and special treatment needed

### Notes to Physician

Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

### Special hazards arising from the substance or mixture

The product causes burns of eyes, skin and mucous membranes. Do not allow run-off from fire-fighting to enter drains or water courses. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

### Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>), Ammonia, Heavy metal oxides, Thermal decomposition can lead to release of irritating gases and vapors.

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

### Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Do not allow material to contaminate ground water system. Should not be released into the environment.

### Methods and Material for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

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## Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Corrosives area.

### Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

### Exposure Controls

#### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### **Eye Protection**

Goggles

#### **Hand Protection**

Protective gloves

#### **Skin and body protection**

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

#### **Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

#### **Recommended Filter type:**

Particulates filter conforming to EN 143

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

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**Environmental exposure controls** Prevent product from entering drains Do not allow material to contaminate ground water system Local authorities should be advised if significant spillages cannot be contained

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Orange	
Physical State	Powder Solid	
Odor	pungent	
Odor Threshold	No data available	
pH	1 @ 20°C	50 g/l aq.sol
Melting Point/Range	107 - 108 °C / 224.6 - 226.4 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	No information available	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	1410 g/L (20°C)	
Solubility in other solvents	No information available	

### Partition Coefficient (n-octanol/water)

Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	Oxidizer	

Molecular Formula	H8 Ce N8 O18
Molecular Weight	548.22

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

Yes.

### Chemical Stability

Stable under normal conditions. Oxidizer: Contact with combustible/organic material may cause fire.

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## Possibility of Hazardous Reactions

### **Hazardous Polymerization Hazardous Reactions**

Hazardous polymerization does not occur.  
None under normal processing.

## Conditions to Avoid

Excess heat. Incompatible products. Combustible material.

## Incompatible Materials

Acids. Bases. Cyanides. Metals. Reducing Agent. Finely powdered metals. Strong reducing agents. Combustible material.

## Hazardous Decomposition Products

Nitrogen oxides (NOx). Ammonia. Heavy metal oxides. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Product Information

#### (a) acute toxicity;

Oral

Category 4

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cerate(2-), hexakis(nitrato-O)-, diammonium, (OC-6-11)-	300-2000 mg/kg (Rat)	>2000 mg/kg ( Rat )	-

#### (b) skin corrosion/irritation;

C Category 1

#### (c) serious eye damage/irritation;

Category 1

#### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

Category 1

No information available

#### (e) germ cell mutagenicity;

No data available

#### (f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

#### (g) reproductive toxicity;

No data available

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(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; Not applicable  
Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. May cause methemoglobinemia.

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

**Persistence and degradability** Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary  
**Persistence** May persist, based on information available.  
**Degradability** Not relevant for inorganic substances.  
**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative potential** May have some potential to bioaccumulate

**Mobility in soil** The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**  
**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations. Should not be released into the environment.

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## Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

## Other Information

Do not flush to sewer Solutions with low pH-value must be neutralized before discharge  
Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains Large amounts will affect pH and harm aquatic organisms Do not let this chemical enter the environment

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

UN-No UN3085  
Hazard Class 5.1  
Subsidiary Hazard Class 8  
Packing Group II  
Proper Shipping Name Oxidizing solid, corrosive, n.o.s. Ammonium cerium(IV) nitrate

### Road and Rail Transport

UN-No UN3085  
Hazard Class 5.1  
Subsidiary Hazard Class 8  
Packing Group II  
Proper Shipping Name Oxidizing solid, corrosive, n.o.s. Ammonium cerium(IV) nitrate

### IATA

UN-No UN3085  
Hazard Class 5.1  
Subsidiary Hazard Class 8  
Packing Group II  
Proper Shipping Name Oxidizing solid, corrosive, n.o.s. Ammonium cerium(IV) nitrate

## Special Precautions for User

No special precautions required

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

## International Inventories

X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Cerate(2-), hexakis(nitrato-O)-, diammonium, (OC-6-11)-	240-827-6	X	X	X	X	X	X	X	KE-09797

## National Regulations

## Persistent Organic Pollutant

This product does not contain any known or suspected substance

## Ozone Depletion Potential

This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION



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## Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/MDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Revision Date

01-Sep-2023

Revision Summary

SDS sections updated.

**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

**End of Safety Data Sheet**