

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Ammonium cerium(IV) nitrate pure

Revision date: 29.06.2023

Product code: 21405

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Ammonium cerium(IV) nitrate pure

Substance name: diammonium hexanitratocerate  
REACH Registration Number: 01-2119971819-18-XXXX  
CAS No: 16774-21-3  
EC No: 240-827-6

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### Use of the substance/mixture

Laboratory chemicals  
Industrial uses: Uses of substances as such or in preparations at industrial sites  
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Uses advised against

Do not use for private purposes (household).

### 1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH  
Street: Stempelstraße 6  
Place: D-47167 Duisburg  
Telephone: 0203/5194-0  
E-mail: info@analytichem.de  
Contact person: Abteilung Produktsicherheit  
E-mail: produktsicherheit@analytichem.de  
Internet: www.analytichem.de  
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290

Telephone: 0203/5194-107/117

### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

### Further Information

No data available

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Regulation (EC) No 1272/2008

Ox. Sol. 2; H272  
Met. Corr. 1; H290  
Acute Tox. 4; H302  
Skin Corr. 1C; H314  
Eye Dam. 1; H318  
Skin Sens. 1A; H317  
Aquatic Acute 1; H400  
Aquatic Chronic 1; H410

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

#### Regulation (EC) No 1272/2008

Signal word: Danger

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## Pictograms:



## Hazard statements

H272	May intensify fire; oxidiser.
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

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients****3.1. Substances**

Sum formula:	(NH <sub>4</sub> ) <sub>2</sub> [Ce(NO <sub>3</sub> ) <sub>6</sub> ]
Molecular weight:	548,22 g/mol

**Hazardous components**

CAS No	Chemical name	Quantity		
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
16774-21-3	diammonium hexanitratocerate			100 %
	240-827-6		01-2119971819-18-XXXX	
	Ox. Sol. 2, Met. Corr. 1, Acute Tox. 4, Skin Corr. 1C, Eye Dam. 1, Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 1; H272 H290 H302 H314 H318 H317 H400 H410			

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity	
	Specific Conc. Limits, M-factors and ATE			
16774-21-3	240-827-6	diammonium hexanitratocerate	100 %	
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = 300 - 2000 mg/kg			

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

**SECTION 4: First aid measures****4.1. Description of first aid measures**

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#### General information

Take off immediately all contaminated clothing.  
Self-protection of the first aider

#### After inhalation

Provide fresh air.  
Call a physician immediately.

#### After contact with skin

Wash immediately with: Water  
Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

#### After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Protect uninjured eye.

#### After ingestion

Rinse mouth immediately and drink plenty of water.  
Do NOT induce vomiting.  
Call a physician immediately.

#### **4.2. Most important symptoms and effects, both acute and delayed**

Irritant — skin irritation and eye damage  
Causes burns.  
Cough  
Dyspnoea  
Risk of serious damage to eyes.  
Vomiting  
Gastrointestinal complaints  
Circulatory collapse  
Spasms  
Narcotic effects  
Respiratory complaints  
Methaemoglobinaemia  
Ataxie

#### **4.3. Indication of any immediate medical attention and special treatment needed**

No data available

## SECTION 5: Firefighting measures

#### **5.1. Extinguishing media**

##### **Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

##### **Unsuitable extinguishing media**

Full water jet

#### **5.2. Special hazards arising from the substance or mixture**

Non-combustible solids  
oxidising  
Hazardous combustion products  
In case of fire may be liberated:  
Nitrogen oxides (NO<sub>x</sub>)

#### **5.3. Advice for firefighters**

Do not inhale explosion and combustion gases.  
Avoid contact with skin, eyes and clothes.

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In case of fire: Wear self-contained breathing apparatus.

#### Additional information

Suppress gases/vapours/mists with water spray jet.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

Use water spray jet to protect personnel and to cool endangered containers.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### General advice

Corrosive to metals.

#### For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

#### For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.

### 6.3. Methods and material for containment and cleaning up

#### For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Take up carefully when dry. Take up dust-free and set down dust-free.

#### For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

#### Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

### 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff. Keep container tightly closed.

Use personal protection equipment. Use extractor hood (laboratory).

Provide adequate ventilation. Avoid dust formation. Do not breathe dust.

Avoid contact with skin, eyes and clothes.

#### Advice on protection against fire and explosion

Usual measures for fire prevention.

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#### Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Make available sufficient washing facilities  
Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.  
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

#### Further information on handling

Draw up and observe skin protection programme.  
Wash hands and face before breaks and after work and take a shower if necessary.  
Take off immediately all contaminated clothing and wash it before reuse.  
If handled uncovered, arrangements with local exhaust ventilation have to be used.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### Requirements for storage rooms and vessels

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

##### Hints on joint storage

Keep away from combustible material.

##### Further information on storage conditions

Store in a dry place.  
storage temperature +5°C - +30°C

#### 7.3. Specific end use(s)

Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### PNEC values

CAS No	Substance	
	Environmental compartment	Value
16774-21-3	diammonium hexanitratocerate	
	Freshwater	0,00014 mg/l
	Freshwater (intermittent releases)	0,0014 mg/l
	Marine water	0,000014 mg/l
	Freshwater sediment	18,5 mg/kg
	Marine sediment	1,85 mg/kg
	Soil	0,485 mg/kg

#### 8.2. Exposure controls

##### Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.  
If handled uncovered, arrangements with local exhaust ventilation have to be used.  
Avoid dust formation. Do not breathe dust.

##### Individual protection measures, such as personal protective equipment

##### Eye/face protection

goggles  
Wear eye/face protection.

##### Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

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Wearing time with permanent contact  
Trade name/designation: KCL 741 Dermatril® L  
Suitable material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with permanent contact: > 480 min

By short-term hand contact  
Trade name/designation: KCL 741 Dermatril® L  
Suitable material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>, <) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

#### Skin protection

Wear suitable protective clothing.  
Take off immediately all contaminated clothing.  
Wash hands before breaks and after work.

#### Respiratory protection

Respiratory protection necessary at: dust formation  
Filtering device with filter or ventilator filtering device of type: P2

#### Environmental exposure controls

Do not allow to enter into surface water or drains.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	solid
Colour:	orange
Odour:	stinging
Melting point/freezing point:	214 °C
Boiling point or initial boiling point and boiling range:	No data available
Flammability:	No data available
Lower explosion limits:	No data available
Upper explosion limits:	No data available
Flash point:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	185 °C
pH-Value (at 20 °C):	1 (50 g/l)
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	1410 g/L
Solubility in other solvents	No data available
Partition coefficient n-octanol/water:	No data available
Vapour pressure:	No data available
Density:	2,49 g/cm <sup>3</sup>
Bulk density:	1200 kg/m <sup>3</sup>
Relative vapour density:	No data available

### 9.2. Other information

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#### Information with regard to physical hazard classes

Explosive properties

No data available

Sustaining combustion:

No data available

Self-ignition temperature

Solid:

No data available

Gas:

No data available

Oxidizing properties

oxidising

May intensify fire; oxidiser.

#### Other safety characteristics

Evaporation rate:

No data available

Solvent separation test:

No data available

Solvent content:

0

Solid content:

100

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

No data available

Flow time:

No data available

#### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

oxidising

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

Reducing agent

Oxidising agent

Acid

Alkali (lye)

Heavy metals

### 10.4. Conditions to avoid

Heat

### 10.5. Incompatible materials

Metal

### 10.6. Hazardous decomposition products

In case of fire may be liberated:

SECTION 5: Firefighting measures

#### Further information

No data available

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

No data available

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**Acute toxicity**

Harmful if swallowed.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
16774-21-3	diammonium hexanitratocerate				
	oral	LD50 300 - 2000 mg/kg	Rat	Study report (2013)	OECD Guideline 420
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2013)	OECD Guideline 402

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

Causes serious eye damage.

**Sensitising effects**

May cause an allergic skin reaction. (diammonium hexanitratocerate)

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Based on available data, the classification criteria are not met.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Information on likely routes of exposure**

No data available

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards**

**Endocrine disrupting properties**

No data available

**Further information**

Irritant — skin irritation and eye damage

Causes burns.

Cough

Dyspnoea

Risk of serious damage to eyes.

Vomiting

Gastrointestinal complaints

Circulatory collapse

Spasms

Narcotic effects

Respiratory complaints

Methaemoglobinaemia

Ataxie

**SECTION 12: Ecological information**



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**12.1. Toxicity**

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
16774-21-3	diammonium hexanitratocerate					
	Acute algae toxicity	ErC50 93 mg/l	72 h	Pseudokirchneriella subcapitata	REACH Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 > 26 mg/l	48 h	Daphnia magna	REACH Registration Dossier	OECD Guideline 202
	Acute bacteria toxicity	(EC50 > 256 mg/l)	3 h	activated sludge of a predominantly domestic sewage	REACH Registration Dossier	OECD Guideline 209

**12.2. Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

No data available

**BCF**

CAS No	Chemical name	BCF	Species	Source
16774-21-3	diammonium hexanitratocerate	< 20	Roccus saxatilis, Crassostrea virginica, and Mya a	REACH Registration D

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This substance does not have endocrine disrupting properties with respect to non-target organisms.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.  
Send to a physico-chemical treatment facility under observation of official regulations.  
Do not allow to enter into surface water or drains.

**Contaminated packaging**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.  
Handle contaminated packages in the same way as the substance itself.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

**14.1. UN number or ID number:**

UN 3085

**14.2. UN proper shipping name:**

OXIDIZING SOLID, CORROSIVE, N.O.S. (diammonium hexanitratocerate)

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**14.3. Transport hazard class(es):** 5.1  
**14.4. Packing group:** II  
 Hazard label: 5.1+8  
 Classification code: OC2  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2  
 Transport category: 2  
 Hazard No: 58  
 Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 3085  
**14.2. UN proper shipping name:** OXIDIZING SOLID, CORROSIVE, N.O.S. (diammonium hexanitratocerate)  
**14.3. Transport hazard class(es):** 5.1  
**14.4. Packing group:** II  
 Hazard label: 5.1+8  
 Classification code: OC2  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 3085  
**14.2. UN proper shipping name:** OXIDIZING SOLID, CORROSIVE, N.O.S. (diammonium hexanitratocerate)  
**14.3. Transport hazard class(es):** 5.1  
**14.4. Packing group:** II  
 Hazard label: 5.1+8  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2  
 EmS: F-A, S-Q

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 3085  
**14.2. UN proper shipping name:** OXIDIZING SOLID, CORROSIVE, N.O.S. (diammonium hexanitratocerate)  
**14.3. Transport hazard class(es):** 5.1  
**14.4. Packing group:** II  
 Hazard label: 5.1+8  
 Special Provisions: A3 A803  
 Limited quantity Passenger: 2.5 kg  
 Passenger LQ: Y544  
 Excepted quantity: E2  
 IATA-packing instructions - Passenger: 558  
 IATA-max. quantity - Passenger: 5 kg  
 IATA-packing instructions - Cargo: 562  
 IATA-max. quantity - Cargo: 25 kg

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: Yes  
 Danger releasing substance: diammonium hexanitratocerate

**SECTION 15: Regulatory information**

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**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 65

Information according to 2012/18/EU (SEVESO III): P8 OXIDISING LIQUIDS AND SOLIDS

Additional information: E1

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 3 - highly hazardous to water

**SECTION 16: Other information**

**Changes**

This data sheet contains changes from the previous version in section(s): 12.

**Abbreviations and acronyms**

Ox. Sol: Oxidising solid

Met. Corr: Substance or mixture corrosive to metals

Acute Tox: Acute toxicity

Skin Corr: Skin corrosion

Eye Dam: Eye damage

Skin Sens: Skin sensitisation

Aquatic Acute: Acute aquatic hazard

Aquatic Chronic: Chronic aquatic hazard

**Relevant H and EUH statements (number and full text)**

- H272 May intensify fire; oxidiser.
- 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.
- H318 Causes serious eye damage.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.