

# Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 13.07.2010

Revision: 13.07.2010

## 1 Identification of substance

### Product details

Trade name

**Cerium (III) nitrate**

Stock number:

11330

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon: +49(0)6131/19240

## 2 Hazards identification

Hazard designation:

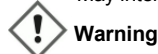
R 8 Contact with combustible material may cause fire.  
R 36/37/38 Irritating to eyes, respiratory system and skin.

Information pertaining to particular dangers for man and environment

GHS label elements



H272 - May intensify fire; oxidiser.



H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P221 Take any precaution to avoid mixing with combustibles.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Prevention:

Response:

Storage:

Disposal:

P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

## 3 Composition/information on ingredients

Chemical characterization:

Designation: (CAS#)

Cerium (III) nitrate, hexahydrate (CAS# 10294-41-4): 100%

Identification number(s):

233-297-2

EINECS Number:

## 4 First aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

## 5 Fire fighting measures

Suitable extinguishing agents

Use fire fighting measures that suit the environment.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:

Metal oxide  
Nitrogen oxides (NOx)

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Protective equipment:

Wear self-contained breathing apparatus.  
Wear full protective suit.

## 6 Accidental release measures

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Ensure adequate ventilation

Measures for cleaning/collecting:

Do not allow material to be released to the environment without proper governmental permits.

Additional information:

Ensure adequate ventilation.

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

## 7 Handling and storage

Handling

Information for safe handling:

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

Substance/product can reduce the ignition temperature of flammable substances.  
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.  
The product is not flammable

Storage

Requirements to be met by storerooms and containers:

No special requirements.

Information about storage in one common storage facility:

Store away from flammable substances.  
Store away from reducing agents.  
Store away from water.

Further information about storage conditions:

This product is hygroscopic.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and keep away from water.

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## 8 Exposure controls and personal protection

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with critical values that require monitoring at the workplace:**  
**Additional information:**

Not required.  
No data

**Personal protective equipment**  
**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Avoid contact with the eyes and skin.  
Use breathing protection with high concentrations.  
Check protective gloves prior to each use for their proper condition.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Breathing equipment:**

**Protection of hands:**

**Material of gloves**

Safety glasses

**Eye protection:**

Face protection

**Body protection:**

Protective work clothing.

## 9 Physical and chemical properties:

### General Information

**Form:** Crystalline  
**Colour:** White  
**Smell:** Acidic

### Change in condition

**Melting point/Melting range:** Not determined  
**Boiling point/Boiling range:** Not determined  
**Sublimation temperature / start:** Not determined

**Flash point:** Not applicable

**Inflammability (solid, gaseous)** Contact with combustible material may cause fire.

**Ignition temperature:** Not determined

**Decomposition temperature:** Not determined

### Critical values for explosion:

**Lower:** Not determined  
**Upper:** Not determined

**Steam pressure:** Not determined

**Density at 20°C** 1.67 g/cm<sup>3</sup>

**Solubility in / Miscibility with Water:**

Soluble

## 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**

**Materials to be avoided:**

No decomposition if used and stored according to specifications.

Reducing agents  
Water/moisture  
Reducing agents, easily oxidized materials  
Organic materials  
Metal powders  
Reacts with reducing agents  
Reacts with flammable substances  
Metal oxide  
Nitrogen oxides (NO<sub>x</sub>)

**Dangerous reactions:**

**Dangerous products of decomposition:**

## 11 Toxicological information

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

Oral	LD50	4200 mg/kg (rat)
Irritation of skin	mild	500 mg/24H (rabbit)
Irritation of eyes	severe	100 mg (rabbit)

**Primary irritant effect:**

**on the skin:**

Irritant for skin and mucous membranes.

**on the eye:**

Irritant effect.

**Sensitization:**

No sensitizing effect known.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

## 12 Ecological information:

**Additional ecological information:**

**General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.  
Do not allow material to be released to the environment without proper governmental permits.

## 13 Disposal considerations

**Product:**

**Recommendation**

Consult state, local or national regulations for proper disposal.  
Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.

**Uncleaned packagings:**

**Recommendation:**

**Recommended cleaning agent:**

Disposal must be made according to official regulations.  
Water, if necessary with cleaning agent.

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## 14 Transport information

### Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)



**ADR/RID-GGVS/E Class:** 5.1 (O2) Oxidising substances.  
**Kemler Number:** 50  
**UN-Number:** 1477  
**Packaging group:** III  
**Label:** 5.1  
**Designation of goods:** 1477 NITRATES, INORGANIC, N.O.S. (Cerium (III) nitrate)  
**Limited quantities (LQ):** LQ12  
**Transport category:** 3  
**Tunnel restriction code:** E

### Maritime transport IMDG/GGVSea:



**IMDG/GGVSea Class:** 5.1  
**UN Number:** 1477  
**Label:** 5.1  
**Packaging group:** III  
**Marine pollutant:** No  
**Correct technical name:** NITRATES, INORGANIC, N.O.S. (Cerium (III) nitrate)

### Air transport ICAO-TI and IATA-DGR:



**ICAO/IATA Class:** 5.1  
**UN/ID Number:** 1477  
**Label:** 5.1  
**Packaging group:** III  
**Correct technical name:** NITRATES, INORGANIC, N.O.S. (Cerium (III) nitrate)

### UN "Model Regulation":

UN1477, NITRATES, INORGANIC, N.O.S., 5.1, III

## 15 Regulatory information

### Designation according to EC guidelines:

### Code letter and hazard designation of product:



Xi Irritant  
 O Oxidising

### Risk phrases:

8 Contact with combustible material may cause fire.  
 36/37/38 Irritating to eyes, respiratory system and skin.

### Safety phrases:

17 Keep away from combustible material.  
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 37 Wear suitable gloves.  
 60 This material and its container must be disposed of as hazardous waste.

### National regulations

### Information about limitation of use:

Employment restrictions concerning young persons must be observed.  
 For use only by technically qualified individuals.

### Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

## 16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

**Abbreviations and acronyms:**  
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
 ICAO: International Civil Aviation Organization  
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent