

**SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY**

**1.1 Product identifiers**

Product Name : ACS Material Cerium Oxide  
 Brand : ACS Material LLC  
 CAS-No. : 1306-38-3

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

Identified uses : Laboratory chemicals, Manufacturing of substances

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

Company : ACS MATERIAL LLC  
 959 E Walnut Street, Suite 100  
 Pasadena, CA 91106  
 USA  
 Telephone : +1 (866)-227-0656  
 Fax : +1 (781)-518-0284

**1.4 Emergency telephone number**

Emergency Phone #: +1 (866)-227-0656

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Eye irritation (Category 2A), H319

Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Warning

Hazard statement(s)

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

Precautionary statement(s)	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P337+P313	If eye irritation persists get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/ container to an approved waste disposal plant.
Supplemental Hazard	
Statements	None

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none**

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

Substance name	:	Cerium Oxide
CAS-No	:	1306-38-3
EC-No.	:	215-150-4
Synonyms	:	Cerium(IV) Oxide, Ceria, Cerium Dioxide
Linear formula	:	CeO <sub>2</sub>
Molecular weight	:	172.11 g/mol

**Hazardous ingredients**

Components	Concentration	CAS No.
Ceric Oxide	>99.99%	1306-38-3

For the full text of the phrases mentioned in this Section, see Section 16.

**Hazardous impurities:** None known.

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures**

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a



physician.

### **In case of skin contact**

Wash off with soap and plenty of water.

### **In case of eye contact**

Flush eyes with water as a precaution.

### **If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available

## **SECTION 5: FIREFIGHTING MEASURES**

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### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

The product is not flammable

### **5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

### **5.4 Further information**

No data available

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### **6.4 Reference to other sections**

For disposal see section 13.

## **SECTION 7: HANDLING AND STORAGE**

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## 7.1 Precautions for safe handling

### Suitable extinguishing media

Avoid contact with skin and eyes. Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

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

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Body Protection

Choose Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

The EPA mandates the use of full face respirators with minimum N100 grade cartridges if there is any risk of exposure to the dust. For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Control of environmental exposure

Do not let product enter drains.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

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**9.1 Information on basic physical and chemical properties**

1) Appearance	Form: powder
2) Odour	Odourless
3) Odour Threshold	No data available
4) pH	No data available
5) Melting point/freezing point	Melting point/freezing point: > 400 °C - OECD Test Guideline 102
6) Initial boiling point and boiling range	> 400 °C - OECD Test Guideline 103
7) Flash point	Not applicable
8) Evaporation rate	No data available
9) Flammability (solid, gas)	Not auto-flammable
10) Upper/lower flammability or explosive limits	No data available
11) Vapour pressure	No data available
12) Vapour density	No data available
13) Relative density	7.13 g/cm <sup>3</sup> at 25 °C
14) Water solubility	Insoluble
15) Partition coefficient: n- octanol/water	No data available
16) Auto-ignition temperature	> 400 °C
17) Decomposition temperature	No data available
18) Viscosity	No data available
19) Explosive properties	No data available
20) Oxidizing properties	No data available

**9.2 Other safety information**

No data available

**SECTION 10: STABILITY AND REACTIVITY**

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**10.1 Reactivity**

No data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

No data available

**10.4 Conditions to avoid**

No data available.

**10.5 Incompatible materials**

Strong oxidizing agents

**10.6 Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - cerium oxides

Other decomposition products - No data available

In the event of fire: see section 5.

**SECTION 11: TOXICOLOGICAL INFORMATION**

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**11.1 Information on toxicological effects****Acute toxicity**

LD50 Oral - Rat - male and female - > 5,000 mg/Kg (Cerium(IV) oxide)

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5.05 mg/L (Cerium(IV) oxide)

(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2,000 mg/Kg (Cerium(IV) oxide)

(OECD Test Guideline 402)

**Skin corrosion/irritation**

Skin – Rabbit (Cerium(IV) oxide)

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes – Rabbit (Cerium(IV) oxide)

Result: Mild eye irritation (OECD Test Guideline 405)

**Respiratory or skin sensitisation**

Maximisation Test - Guinea pig (Cerium(IV) oxide)

Result: Did not cause sensitisation on laboratory animals.

(OECD Test Guideline 406)

**Germ cell mutagenicity**

Ames test (Cerium(IV) oxide)

S. typhimurium

Result: negative

Mutagenicity (micronucleus test)(Cerium(IV) oxide)

Mouse - male and female

Result: negative

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**



No data available

## Aspiration hazard

No data available

## Additional Information

RTECS: FK6310000

Rare earth compounds may cause delayed blood clotting leading to hemorrhag heat, itching, and increased awareness of odor and taste. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Cerium(IV) oxide)

## SECTION 12: ECOLOGICAL INFORMATION

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### 12.1 Toxicity

Toxicity to fish                      Semi-static test EC50 - Danio rerio (zebra fish) - > 200 mg/l –  
72h(Cerium(IV) oxide)

Toxicity to daphnia and  
other aquatic  
invertebrates

Immobilization EC50 - Daphnia magna (Water flea) - > 1,000  
mg/l - 48 h(Cerium(IV) oxide) (OECD Test Guideline 202)

Toxicity to bacteria      EC50 - Sludge Treatment - > 1,000 mg/l - 3 h(Cerium(IV) oxide)

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not  
conducted.

### 12.6 Other adverse effects

No data available

## SECTION 13: DISPOSAL CONSIDERATIONS

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### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: TRANSPORT INFORMATION

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- 14.1 UN number**  
ADR/RID: -                   IMDG: -                   IATA: -
- 14.2 UN proper shipping name**  
ADR/RID:     Not dangerous goods  
MDG:   Not dangerous goods  
IATA:   Not dangerous goods
- 14.3 Transport hazard class(es)**  
ADR/RID: -                   IMDG: -                   IATA: -
- 14.4 Packaging group**  
ADR/RID: -                   IMDG: -                   IATA: -
- 14.5 Environmental hazards**  
ADR/RID: no                IMDG Marine pollutant: no                IATA: no
- 14.6 Special precautions for user**  
No data available

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture** This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. **Chemical safety assessment**

For this product a chemical safety assessment was not carried out.

**SECTION 16: OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**

Eye Irrit. Eye irritation  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.

**HMIS Rating**

Health hazard:                   1

**Chronic Health Hazard:**

Flammability:                   0  
Physical Hazard:               0

**NFPA Rating**

Health hazard:                   1  
Fire Hazard:                    0  
Reactivity Hazard:            0

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