

# Safety Data Sheet



## 1: Identification

### 1.1: Product Identifier

Product Name: CeO<sub>2</sub>

Product Number(s): 1CEO2-0001F

CAS Number: 1306-38-3

SDS Document Number: 000054

### 1.2: Recommended Uses and Restrictions

Recommended Uses

Manufacture of substances

Restrictions

Not for food or drug use.

### 1.3: Supplier Contact Information

APL Engineered Materials, Inc.

2401 N. Willow Rd.

Urbana, IL 61802

Phone: 217-367-1340

Fax: 217-367-9084

### 1.4: Emergency Phone Number

International: +01-813-248-0585

United States: 800-255-3924

## 2: Hazards Identification

### 2.1: Classifications

Not a hazardous substance or mixture - .

### 2.2: GHS Label Elements

Pictograms

Signal Word:

Hazard Statements

Not a hazardous substance.

Precautionary Statements

Not a hazardous substance.

### 2.3: Hazards Not Otherwise Classified or Not Covered by GHS

None.

#### 2.4: Amount(s) of substances with unknown toxicity

None

### 3: Composition/Information on Ingredients

| 3.1: .Ingredient | .Weight% | .Formula | .CAS Number | .Mol Wt | .EC Number |
|------------------|----------|----------|-------------|---------|------------|
| CeO2             | 100      | CeO2     | 1306-38-3   | 172.11  | 215-150-4  |

#### 3.2: Other Hazardous components

none

#### 3.3: Trade Secret Disclaimer

none

#### 3.4: Synonyms

Cerium (IV) Oxide  
Ceric oxide  
Ceria

### 4: First Aid Measures

#### 4.1: First Aid

##### General

Consult with physician and provide this Safety Data Sheet

Remove person from area of exposure and remove any contaminated clothing

##### In contact with eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Seek medical attention if irritation develops or persists

##### In contact with skin

Wash thoroughly with soap and plenty of water. Remove all contaminated clothing for proper laundering. Seek medical attention if irritation develops or persists.

##### If swallowed

If conscious and alert, rinse mouth and drink 2-4 cupfuls of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical aid.

##### If inhaled

Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid.

If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

#### 4.2: Most important symptoms and effects; acute and delayed

No data available.

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

no data available

### 5: Fire Fighting Measures

#### 5.1: Fire extinguishing media

dry chemical

water or alcohol-resistant foam  
carbon dioxide

5.2: Specific hazards arising from the substance or mixture  
cerium oxide

5.3: Special protective equipment and precautions for firefighters.  
Wear self contained breathing apparatus for fire fighting if necessary

## **6: Accidental Release Measures**

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

Ensure adequate ventilation.  
For personal protection see section 8.  
Avoid dust formation.  
Avoid breathing dust.  
Evacuate personnel to safe areas.  
Use personal protective equipment.

6.2: Methods and materials for containment and cleaning up.

Keep in suitable, closed containers for disposal.  
Sweep up and shovel.

6.3: Environmental precautions

Do not let product enter drains.

6.4: Disposal

Dispose of in accordance with local regulations.  
See section 13.

## **7: Handling and Storage**

7.1: Precautions for safe handling

See precautionary statements in section 2.2.  
Provide appropriate exhaust ventilation at places where dust is formed.  
Avoid contact with skin and eyes.  
Avoid formation of dust and aerosols.

7.2: Conditions for safe storage

Keep container tightly closed.  
Store away from moisture.  
Store in a dry and well-ventilated place.

7.3: Incompatibilities

strong oxidizing agents

## **8: Exposure Controls/Personal Protection**

8.1: Control parameters

OSHA permissible exposure limit (PEL)

not listed  
ACGIH threshold limit value (TLV)  
not listed  
NIOSH recommended exposure limit (REL)  
not listed

## 8.2: Engineering controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower  
Use adequate ventilation to keep airborne concentrations low

## 8.3: Personal protective equipment

### Eyes

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

### Skin

Wear appropriate, chemical-resistant protective gloves to prevent skin exposure.

### Clothing

Wear appropriate protective clothing to prevent skin exposure

### Respirator

Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149.  
Always use a NIOSH or European Standard EN 149 approved respirator when necessary

# 9: Physical and Chemical Properties

## 9.a: Appearance

State: Solid  
Form: powder or spheres  
Color: white to pale yellow

9.b: Odor: no data available

9.c: Odor threshold: no data available

9.d: pH: no data available

9.e: Melting point / freezing point: 2,400 °C (4,350 °F)

9.f: Initial boiling point and range: 3,500 °C (6,330 °F)

9.g: Flashpoint: no data available

9.h: Evaporation rate: no data available

9.i: Flammability (solid, gas): no data available

9.j: Upper/lower flammability or explosive limits: no data available

9.k: Vapor pressure: no data available

9.l: Vapor density: no data available

9.m: Relative density: 7.13 g/cm<sup>3</sup> at 25 °C (77 °F)

9.n: Water Solubility: insoluble

9.o: Partition coefficient: n-octanol/water: no data available

9.p: Auto-ignition temperature: no data available

9.q: Decomposition temperature: no data available

9.r: Viscosity: no data available

## 10: Stability and Reactivity

### 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

In the event of fire: see section 5

exposure to water

### 10.5: Incompatible materials

See section 7.3.

### 10.6: Hazardous decomposition products

In the event of fire: see section 5.2

Other decomposition products - no data available

## 11: Toxicological Information

### 11.1: Toxicity data

Acute toxicity - Oral

LD50 Oral - rat - male and female - > 5,000 mg/kg.

Acute toxicity - Dermal

LD50 Dermal - rat - male and female - >2,000 mg/kg.

Acute toxicity - Inhalation

LC50 Inhalation - rat - male and female - 4 h - >5.05 mg/l

Skin corrosion/irritation

Not corrosive / irritant.

Eye damage/irritation

Slightly irritating.

Respiratory irritation

No data available.

Germ cell mutagenicity

Tests showed no mutagenic effects.

Reproductive toxicity

no data available

Specific organ toxicity - single exposure

No data available.

Specific organ toxicity - repeated exposure

No data available.

Aspiration hazard

No data available.

Additional information

RTECS: FK6310000

ACGIH carcinogenicity

The ACGIH has not identified any component of this product present at levels greater than or equal to 0.1% as a probable, possible or confirmed human carcinogen.

IARC carcinogenicity

The IARC has not identified any component of this product present at levels greater than or equal to 0.1% as a probable, possible or confirmed human carcinogen.

NTP carcinogenicity

The NTP has not identified any component of this product present at levels greater than or equal to 0.1% as a probable, possible or confirmed human carcinogen.

OSHA carcinogenicity

OSHA has not identified any component of this product present at levels greater than or equal to 0.1% as a probable, possible or confirmed human carcinogen.

## 11.2: Routes of exposure

eyes

oral

skin

## 11.3: Symptoms of exposure

See section 4.2

## 11.4: Delayed and immediate effects of exposure

Exposure to cerium salts increases the coagulation rate of blood.

Exposure to cerium salts may increase sensitivity to heat, cause skin lesions and itching. Large doses in test animals has causes labored breathing, ataxia, sedation, writhing, hypotension and death due to cardiovascular collapse.

To the best of our knowledge the toxicological properties have not been thoroughly investigated.

# 12: Ecological Information

## 12.1: Ecotoxicity

Toxicity to fish

Semi-static test EC50 - Danio rerio (zebra fish) - > 200 mg/l - 72 h

Toxicity to daphnia and other aquatic invertebrates

Immobilization EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h

Toxicity to algae/bacteria

EC50 - Sludge Treatment - > 1,000 mg/l - 3 h

## 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: Other effects

no data available

## 13: Disposal Considerations

13.1: Waste treatment methods

No data available

13.2: Safe handling

See section 7.1 .

13.3: Product disposal

Contact a licensed professional waste disposal service to dispose of this material.

13.4: Packaging disposal

Dispose of as unused product.

## 14: Transport Information

14.1: DOT(US)

UN Number: Not a dangerous good

Proper Shipping Name:

Packing Group:

Shipping Class(es): 0

Marine Pollutant: No

14.2: IMDG

UN Number: Not a dangerous good

Proper Shipping Name:

Packing Group:

Shipping Class(es): 0

Marine Pollutant: No

14.3: IATA

UN Number: Not a dangerous good

Proper Shipping Name:

Packing Group:

Shipping Class(es): 0

14.4: Special Shipping Precautions

None

## 15: Regulatory Information

15.1: TSCA inventory

This material is listed on the TSCA inventory.

15.2: SARA 302 components

This material is not subject to the reporting requirements of SARA Title III, Section 302.

### 15.3: SARA 313 components

This material is not subject to the reporting requirements of SARA Title III, Section 313.

### 15.4: SARA 313/312 hazards

Chronic health hazard.

### 15.5: Other information

Massachusetts Right To Know Components - This product does not contain materials listed on the Massachusetts Right to Know list

California Prop. 65 Components - This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

New Jersey Right To Know Components -This product contains materials listed on the New Jersey Right to Know list

Pennsylvania Right To Know Components -This product contains materials listed on the Pennsylvania Right to Know list

## 16: Additional Information

### 16.1: NFPA

Health: 1

Fire: 0

Reactivity: 0

Special:

### 16.2: HMIS

Health: 1

Chronic: \*

Flammability: 0

Physical Hazard: 0

### 16.3: Disclaimers

For industrial use only. Not for drug, household or other uses

The information herein is believed to be accurate and reliable as of the date compiled. However, APL Engineered Materials, Inc. makes no representation, warranty, or guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.

### 16.4: References

Information contained on this SDS sheet was obtained from some or all of the following sources: American Conference of Governmental Industrial Hygienists (ACGIH), TLVs and BEIs; National Institute for Occupational Safety and Health (NIOSH), Pocket Guide to Chemical Hazards; European Chemicals Agency, <http://echa.europa.eu/>; The National Institute of Health, U.S National Library of Medicine, TOXNET, Toxicology Data Network; and the Registry of Toxic Effects of Chemical Substances (RTECS) database.

### 16.5: Version

Preparation Date: 5/22/2015

Revision Date: 5/22/2015

Version Number: GHS 1.0