



Materials Safety Data Sheet

Cerium Dioxide Sputtering Target

1. Product and Company Identification

Product Name: Cerium Dioxide

Formula: CeO_2

CAS: 1306-38-3

EC No.: 215-150-4

Synonyms: Cerium(IV) oxide, Cerium oxide

Recommended Use: Laboratory chemicals, Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

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2. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP).

The substance is not classified as hazardous

GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard statement(s): None

Precautionary Statement(s): None

Other hazards: During machining or processing, dust generation should be avoided. Dust inhalation may cause respiratory irritation.

3. Composition

Components	CAS	Classification (H)	Concentration
Cerium dioxide (CeO ₂)	1306-38-3	Not classified	<=100%

4. First Aid Procedures

Description of first aid measures

General Treatment: Seek medical attention if symptoms persist.

Inhalation: Remove victim to fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Ingestion: Make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Skin: Take off immediately all contaminated clothing. Rinse skin with water/shower. Seek medical attention.

Eyes: Rinse with pure water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed, are included on labelling (Section 2) and in Section 11.

Indication of any immediate medical attention and special treatment needed

Based on the symptoms that appear, provide targeted treatment. Be aware that symptoms may be delayed.

5. Firefighting Measures

Extinguishing Media: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media: N/A

Special hazards arising from the substance or mixture

Cerium dioxide is non-flammable. Heating or fire involving surrounding materials may release irritating dust or fumes.

Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Fight fire from a safe distance and with adequate protection. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately.

Further information

No data available

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Remove persons to safety. Use personal protective equipment as required. Avoid dust formation and inhalation. Ensure adequate ventilation. For emergency responders: Wear breathing apparatus if exposed to dust.

Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

Methods and materials for containment and cleaning up

Covering of drains. Take up mechanically. Take care not to raise dust. Place in appropriate containers for disposal. Ventilate affected area.

Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid mechanical damage and contamination. Handle carefully to prevent generation of particles during processing. Do not get in eyes, on skin, or on clothing. Normal measures for preventive fire protection. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials: See section 10.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

Exposure controls

Appropriate engineering controls

Ensure good general ventilation during machining operations.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) (European standard - EN 166) and face protection.

Skin protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.) Wear appropriate protective gloves and clothing to prevent skin exposure. Wash hands thoroughly after handling.

Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Respiratory protection

No protective equipment is needed under normal use conditions. Large scale/emergency use: Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended filter type: Particulates filter conforming to EN143. Small scale/Laboratory use: Maintain adequate ventilation.

Control of environmental exposure

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Solid (Sputtering Target)

Colour: Light yellow

Odor: Odorless

pH: No data available

Melting point/range: 2600 °C

Boiling point/range: No data available

Flash point: No data available

Evaporation rate: Not applicable - Solid

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density: 7.132 g/cm³

Water solubility: Insoluble

Partition coefficient: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: Not applicable

Other information

Molecular formula: CeO₂

Molecular weight: 172.11 g/mol

10. Stability and reactivity

Reactivity

None known, based on information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No information available

Conditions to avoid

No data available.

Incompatible materials

Strong reducing agents, strong acids and reactive metals.

Hazardous decomposition products

In the event of fire: see section 5.

11. Toxicological Information

Information on toxicological effects**Acute toxicity**

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available.

Germ cell mutagenicity

No data available

Carcinogenicity

No data available.

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

Not applicable. Solid

Additional Information

Endocrine disrupting properties: This product does not contain any known or suspected endocrine disruptors.

12. Ecological Information

Toxicity

No data available

Persistence and degradability

No data available.

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require

assessment.

Other adverse effects

This substance does not contain any known or suspected persistent organic pollutant or ozone-depleting substance.

13. Disposal Considerations

Waste treatment methods

Dispose of in accordance with all applicable local and national regulations. Use recovery or recycling where feasible. Disposal should be carried out through an appropriately licensed waste management contractor. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. Transportation Information

ADR

Not classified as dangerous goods under ADR.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IMDG

Not classified as dangerous goods under IMDG.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IATA

Not classified as dangerous goods under IATA .

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

15. Regulatory information

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

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other information

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2026-09-22

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Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

This Safety Data Sheet is prepared in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II.