

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND OF THE COMPANY

1.1 Product identifiers

Product name Ceria, gadolinium-doped
Formula $Ce_{1-x}Gd_xO_{2-\delta}$, $0 < x < 0.3$
Brand CerPoTech
REACH No Not available as the annual tonnage of this substance does not require a registration

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

Identified uses Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company Ceramic Powder Technology AS
Kvenildmyra 6,
7093 Tiller,
Norway
Telephone +47 982 83 966
e-mail address sales@cerpotech.com

1.4 Emergency telephone number

Emergency Phone # Toxicology information central (Norway): +47 22 59 13 00

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

2.2 Label elements

The product does not need to be labelled in accordance with EC directives or respective national laws.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Synonyms: Gadolinium doped ceria, Gadolinium doped cerium oxide, CGO

<i>Chemical name</i>	<i>CAS-No.</i>	<i>H-phase</i>	<i>Concentration (wt %)</i>
Cerium oxide	1306-38-3	-	0 – 100 %
Gadolinium oxide	12064-62-9	H319	0 – 100 %

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled

If breathed in, move the person to fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and 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

Described in the section 2.2 and section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIRE-FIGHTING MEASURES**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

Metal oxide fumes can be released in case of fire.

5.3 Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing vapours, mist or gas.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods for cleaning up

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

7. HANDLING AND STORAGE**7.1 Advice on safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Advice on safe storage

Store in tightly closed containers in a dry and well-ventilated place.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**8.1 Control parameters****Components with workplace control parameters****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**

Safety glasses tested and approved under appropriate government standards such as EN 166.

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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	Powder
Odour	Odourless
pH	No data available
Melting point range	No data available
Burning number	No data available
Flammability	No data available
Dust explosibility	The material represents no explosion hazard
Explosive limits	Not applicable
Bulk density	No data available
Solubility	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

No data available

10.5 Materials to avoid

Strong oxidizing agents, Acids, Carbon dioxide.

10.6 Hazardous decomposition

Metal oxides formed under fire conditions.

11. TOXICOLOGICAL INFORMATION

11.1 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

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

Rare earth compounds may cause delayed blood clotting leading to hemorrhages. Inhalation of rare earths may cause sensitivity to heat, itching, and increased awareness of odor and taste. To our best knowledge, chemical, physical and toxicological properties of rare earth compounds and nanoparticles have not been thoroughly investigated and should be handled with care.

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

No data available

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

No data available

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

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

Contaminated packaging

Dispose of as unused product.

13.2 Other information

No data available

14. TRANSPORT INFORMATION**14.1 Land transport (ADR/RID)**

Not dangerous goods.

14.2 Air transport (ICAO-TI/IA TA – DGR)

Not dangerous goods.

14.3 Sea transport (IMDG)

Not dangerous goods.

15. REGULATORY INFORMATION

Labelling according to EC Directives no. 1907/2006

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.21 Chemical Safety assessment
No data available

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.
H319 Causes serious eye irritation

The information provided in this Safety Data Sheet is correct to the best of our knowledge at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release. The above details do not imply any guarantee concerning composition, properties or performance. It is not to be considered a warranty or quality specification and do not apply for the material in combination with any other materials or in any process.