

## [GPS Safety Summary](#)



# Multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride

## [Chemical Identity](#)

CAS number	none (multi-constituent product)	Molecular formula	CeO <sub>2</sub> , La <sub>2</sub> O <sub>3</sub> , LaF <sub>3</sub>
EC number	none (multi-constituent product)	Molecular weight	190 - 210 g/mol

## [Applications](#)

The multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is used as a polishing agent for the manufacture of glass products as well as computer, electrical or electronic equipment.

## [Safety Assessment, Exposure and Risk Management Recommendations](#)

### [Physical and Chemical properties](#)

Property	Result
Physical state	Solid
Form,	Powder
Colour	Off-white to white cream
Melting point	> 500°C
Flammability	Non flammable
Vapour pressure	No potential for volatilisation
Water solubility	Non soluble

### [Health effect](#)



Based on available studies results, the multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is considered as safe for human health when safety measures are respected for handling in accordance with the Safety Data Sheet.

### [Environmental effect](#)



The multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is an inorganic substance, not soluble in water, not biodegradable but not bioaccumulative. Emissions in the air are not expected. This multi-constituent product is considered as not dangerous for the environment. Disposal, treatment or recycling must comply with applicable regulations to preserve environment.

## [Regulatory information](#)

### [Classification and labelling](#)

**EU regulation (EC) 1272/2008 (CLP)**

The multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is not classified as dangerous regarding physical and chemical hazards and is not classified either for the human health or for the environment, according to the regulation criteria.

### [Registration and certification](#)

**EU regulation on chemicals (EC) 1907/2006 (REACH)  
ISO 9001: 2008 certified**

## GPS Safety Summary

This Product Safety Summary is intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy. The information on the Summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the (extended) Safety Data Sheet (e)SDS for the chemical substance.

### Multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride

#### General Statement

Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is a multi-constituent inorganic product. Its properties are closely similar to those of its main constituents: Cerium dioxide and Lanthanum Oxide.

This multi-constituent product is used as such or in formulation only for industrial purpose mainly as a polishing agent for glass products as optical lenses as well as for other applications like electrical or electronic device.

The multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride is used only in industry and is considered as not dangerous for human health and environment.

#### Chemical Identity

**Name:** Multi-constituent product of cerium dioxide and lanthanum oxide and lanthanum fluoride

In the EU this product is considered as a substance and has been registered for REACH under the name of: "Reaction mass of cerium dioxide and lanthanum oxide and lanthanum fluoride"

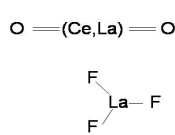
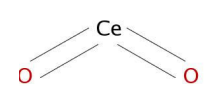

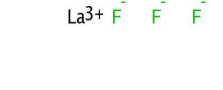
**Chemical name (IUPAC):** Not applicable

**CAS number(s):** none (multi-constituent product)

**EC number :** none (multi-constituent product)

**Molecular formula:** CeO<sub>2</sub>, La<sub>2</sub>O<sub>3</sub>, LaF<sub>3</sub>

**Structure** of the multi-constituent product and structure of Cerium dioxide, Lanthanum oxide and Lanthanum fluoride:

Parameter	Multi-constituent product	CeO <sub>2</sub>	La <sub>2</sub> O <sub>3</sub>	LaF <sub>3</sub>
EC number	None	215-150-4	215-200-5	237-252-8
CAS number	None	1306-38-3	1312-81-8	13709-38-1
Molecular structure				
Molecular weight (g/mol)	190 < MW < 210	172.14	325.81	195.90

Key points on molecular structures of the multi-constituent product, CeO<sub>2</sub>, La<sub>2</sub>O<sub>3</sub> and LaF<sub>3</sub>:

- Each of these compounds contains metals with their natural oxidation state of +4 or +3
- Ce(+IV) is the tetravalent state of Cerium and is very stable.
- La(+III) is the trivalent state of Lanthanum and is very stable.
- The multi-constituent product differs in some of its chemical constituents :
  - Oxygen can be bonded to both Cerium and Lanthanum atoms, to form a solid state solution
  - Fluoride ions are bonded to remaining Lanthanum atoms.

## Uses and applications

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The multi-constituent product of Cerium dioxide and Lanthanum oxide and Lanthanum fluoride production is performed using conventional closed stirred reactors, filters for solid/liquid separation, furnace and kilns for calcination, grinders for particle size adjustment.

The aqueous solution of Rare Earths salts is first neutralised. After reaction completion, the suspension of solid is filtered. The wet solid pulp may be then dried and/or calcined. The solid dried material may be grinded to adjust particle size. The material is then analysed for quality and packaged.

The multi-constituent product is used as such or in formulation only for industrial purpose, for abrasive products or as a polishing agent for the manufacture of glass products, and also computer, electrical equipment and electronic products like LCD and glass hard disk.

The multi-constituent product offers an optimized polishing performance for optical lenses. Because of the firmness and fineness of the particles, it retains effectiveness over a long time.

## Physical/Chemical Properties

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### Phys/Chem Safety Assessment

Property	Value
Physical state	Solid at 20°C and atmospheric pressure
Form	Powder
Colour	Off-white to white cream
Melting Point	> 500°C
Relative density	6,659
Boiling Point	No data needed (solid with melting point > 300°C)
Flash point	No data needed (inorganic product)
Flammability	Non flammable
Explosive properties	Non explosive
Self-ignition temperature	No self-ignition up to 500°C
Vapour pressure	No data needed (melting point > 300°C)
Water solubility	2.23 µg/l at 20°C, insoluble
Octanol Water partition coefficient (log Kow)	No data needed (inorganic product)

Regarding physical and chemical hazards, the multi-constituent product is not classified according to regulation (EC) 1272/2008.

## Health Effects

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### Human Health Safety Assessment

Effect Assessment	Result
Acute Toxicity Oral /inhalation /dermal	Not classified for acute toxicity whatever the route of exposure
Irritation / corrosion Skin /eye	- Not classified for skin irritation - Slightly eye irritating, not resulting in classification
Sensitisation	Not classified for skin sensitisation
Toxicity after repeated exposure Oral /inhalation /dermal	Not classified for repeated toxicity : - Oral and inhalation : by analogy with cerium dioxide studies results - Dermal : no data needed regarding regulation (results on oral and inhalation routes are sufficient)
Genotoxicity / Mutagenicity	Not classified for either mutagenicity or genotoxicity properties
Carcinogenicity	No data available, but no evidence of mutagenicity or pre-neoplastic lesions were observed in genotoxicity or repeated dose toxicity studies on constituents.
Toxicity for reproduction	No effect on fertility and developmental toxicity (based on analogy with cerium dioxide and lanthanum oxide studies)

All these results are based on available data on the multi-constituent product and its constituents. Regarding toxicological hazard, this multi-constituent product is not classified according to EC 1272/2008 regulation criteria.

## Environmental Effects

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### Environment Safety Assessment

Effect Assessment	Result
Aquatic Toxicity	Not harmful to aquatic organisms (short term and long term exposure)

Fate and behaviour	Result
Biodegradation	Not applicable to inorganic products
Bioaccumulation potential	By analogy, should not show any potential for bioaccumulation
PBT / vPvB conclusion	Not applicable to inorganic products

Based on available data, the multi-constituent product of cerium dioxide and lanthanum oxide and lanthanum fluoride is not classified as dangerous for the environment, according to EC 1272/2008 regulation.

## Exposure

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The multi-constituent product is not considered as dangerous for human health and for environment. There is no direct consumer exposure to the product. It is used only in industry where workers and environment may be exposed during manufacturing process and during processes of application.

### Human health

The multi-constituent product is manufactured in a process which ensures that the risk is controlled. Workers may come in contact with the product during packaging operations.

The exposure is kept at a safe level (strictly below exposure limits, when applied), by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers, as indicated in the Safety Data Sheet.

### Environment

Cerium dioxide and lanthanum oxide and lanthanum fluoride is an inorganic multi-constituent product. Due to its inorganic nature, it has no potential for biodegradation. By analogy with its constituents, the multi-constituent product should not have any potential for bioaccumulation. If released into the aquatic environment, this insoluble product should never reach concentrations susceptible to induce toxic effects. Indeed, no adverse impact has been observed during the aquatic ecotoxicity tests. Due to insolubility, the target environmental compartments are soil and sediment. However, considering the absence of aquatic and terrestrial toxicity of the multi-constituent product and its constituents during acute and chronic tests, no adverse impacts are expected. At last, the product is a solid, which does not sublime. So there is no emission in the air.

The multi-constituent product thus appears as not dangerous for the environment.

On the industrial site, effluents are sent to the waste water treatment unit. The collected multi-constituent product is treated and stored in order to be reused.

The indirect exposure of humans via the environment is not expected.

## Risk Management Recommendations

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### Human health

For industrial uses of the multi-constituent product and as recommended for the use of any chemical product, workers must be well informed and trained and must refer to the Safety Data Sheet (SDS) to handle the product in accordance with good industrial hygiene and safety practices.

In order to control possible risks during the handling of the product (during (un)loading, sampling, analysis or maintenance operations), handling must be performed under an adequate and efficient Local Exhaust Ventilation (LEV) at each point of dust emission. Appropriate personal protective equipment (PPE) selected in function of potential exposure conditions (especially according to the application), handling practices, concentration and LEV efficiency, must be worn (glasses with side protection – gloves and protective suit in case of skin contact) as recommended in the SDS. In case of exposure to dust or aerosol, wearing a respirator with approved filter is recommended. Hygiene measures must be respected (accessible emergency equipment, well-maintained PPE, wash hands and skin following contact, do not eat, drink or smoke on the workplace).

## Environment

All effluent releases that may contain the product must be directed to a waste water treatment plant to avoid discharge in the environment.

Disposal, treatment or recycling of industrial waste must comply with applicable regulations to preserve environment.

## State Agency review

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This product has been registered under the EU Regulation (EC) 1907/2006 (REACH).

## Regulatory Information / Classification and labelling

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Classification and labelling according to EU regulation (EC) 1272/2008 (CLP):

### Classification

The multi-constituent product of cerium dioxide and lanthanum oxide and lanthanum fluoride is not classified regarding physical and chemical hazards and is not classified either for human health or for environment.

### Labelling

No pictogram, no signal word, Hazard nor Precautionary statement.

## Contact information within company

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For further information on this product or product safety summaries in general, please contact:

Rhodia Global product Strategy: [http://www.rhodia.com/en/sustainability/global\\_product\\_strategy/index.tcm](http://www.rhodia.com/en/sustainability/global_product_strategy/index.tcm)

Contact: [globalproductstrategy@eu.rhodia.com](mailto:globalproductstrategy@eu.rhodia.com)

## Additional information

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ICCA Global Product Strategy: <http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

(extended) Safety Data Sheet available on demand: [http://www.rhodia.com/en/contact/contact\\_form\\_business.tcm](http://www.rhodia.com/en/contact/contact_form_business.tcm)

Glossary of technical terms: [http://www.rhodia.com/en/sustainability/global\\_product\\_strategy/glossary/index.tcm](http://www.rhodia.com/en/sustainability/global_product_strategy/glossary/index.tcm)

**Date of issue : April 2012**

**Revision : 0**

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## Disclaimer

The information provided in the present Safety Summary is based on European data available in REACH regulatory dossier (EC N°1907/2006) and is correct to the best of our knowledge, information and belief at the date of its publication. Such information is only intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy and is not to be considered as a warranty or quality specification. It does not replace the safety data sheet and technical sheets. Thus, the information provided in this Safety Summary only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.