

# Gadolinium Doped Ceria

## Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 18/09/2014

Version: 1.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance (UVCB)  
Substance name : Gadolinium Doped Ceria  
EC no : 266-340-9  
CAS No : 66402-68-4  
Other means of identification : Ceramic Materials and Wares  
GDC  
GCO  
Gadolinium doped cerium oxide  
Cerium(IV) oxide – gadolinium doped

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

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

Nexceris, LLC  
404 Enterprise Drive  
Lewis Center, Ohio USA 43035  
T: 614-842-6606  
<http://www.nexceris.com>

#### 1.4. Emergency telephone number

Emergency number : Infotrac US & Canada: 1-800-535-5053 Global: 1-352-323-3500

Country	Official advisory body	Address	Emergency number
IRELAND (REPUBLIC OF)	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2166
UNITED KINGDOM	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0870 600 6266 (UK only)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Eye Irrit. 2 H319

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Xi; R36

Full text of R-phrases: see section 16

#### Adverse physicochemical, human health and environmental effects

Causes serious eye irritation.

#### 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]



Hazard pictograms (CLP) :

GHS07

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H319 - Causes serious eye irritation

Precautionary statements (CLP) :

P264 – Wash hands thoroughly after handling  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

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contact lenses, if present and easy to do. Continue rinsing  
P337+P313 - If eye irritation persists: Get medical advice/attention

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type : UVCB  
Name : Gadolinium Doped Ceria  
CAS No : 66402-68-4  
EC no : 266-340-9

Name	Product identifier	%
Gadolinium Doped Ceria	(CAS No) 66402-68-4 (EC no) 266-340-9	100

Full text of R-, H- and EUH-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  
First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.  
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting unless directed to do so by medical personnel.

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

Symptoms/injuries after eye contact : Causes serious eye irritation.

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

All treatments should be based on observed signs and symptoms of distress in the patient.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.  
Unsuitable extinguishing media : None known.

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

No additional information available

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flammable resistant/retardant clothing. Wear a self contained breathing apparatus. EN469.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Chemical goggles or safety glasses.  
Emergency procedures : Ventilate area.

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### 6.2. Environmental precautions

Prevent entry to sewers and public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in a well-ventilated area.

Hygiene measures : Wash hands thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place.

### 7.3. Specific end use(s)

Laboratory chemicals, Manufacture of substances

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Gadolinium Doped Ceria

USA - ACGIH

ACGIH TWA (mg/m<sup>3</sup>)

10 mg/m<sup>3</sup> 8 hour TWA as Total dust

### 8.2. Exposure controls

Appropriate engineering controls : Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Either local exhaust or general room ventilation is usually required.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : Dust impervious gloves. EN374.

Eye protection : Chemical goggles or safety glasses. In case of dust production: protective goggles. EN166.

Respiratory protection : Where excessive dust may result, use approved respiratory protection equipment. Use air-purifying respirator equipped with particulate filtering cartridges. Filtering Half-face mask (DIN EN 149).

Other information : When using, do not eat, drink or smoke.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Solid

Colour : White/Yellow

Odour : Odourless.

Odour threshold : No data available

pH : Not applicable

Relative evaporation rate (butylacetate=1) : Not applicable

Melting point : No data available

Freezing point : No data available

Boiling point : Not applicable

Flash point : Not applicable

Self ignition temperature : Not applicable

Decomposition temperature : No data available

Flammability (solid, gas) : Non flammable.

Vapour pressure : Not applicable

Relative vapour density at 20 °C : No data available

Relative density : No data available

Solubility : insoluble in water.

Log Pow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : Product is not explosive.

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Oxidising properties : No oxidizing properties.  
Explosive limits : No data available

### 9.2. Other information

VOC content : 0 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No dangerous reactions known.

### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

#### Gadolinium Doped Ceria (Based on Cerium dioxide (1306-38-3))

LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 5.05 mg/l/4h

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : Not classified  
Specific target organ toxicity (repeated exposure) : Not classified  
Aspiration hazard : Not classified  
Potential Adverse human health effects and symptoms : Causes serious eye irritation.

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Gadolinium Doped Ceria (Based on Cerium dioxide (1306-38-3))

LC50 fishes 1	> 200 mg/l Brachydanio rerio
EC50 Daphnia 1	> 1000 mg/l

### 12.2. Persistence and degradability

#### Gadolinium Doped Ceria

Persistence and degradability : Not established.

### 12.3. Bioaccumulative potential

#### Gadolinium Doped Ceria

Bioaccumulative potential : Not established.

### 12.4. Mobility in soil

No additional information available

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### 12.5. Results of PBT and vPvB assessment

#### Gadolinium Doped Ceria

PBT: not relevant – no registration required  
vPvB: not relevant – no registration required

### 12.6. Other adverse effects

: Avoid release to the environment

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

Not considered a dangerous good for transport regulations

### 14.2. UN proper shipping name

Not applicable

### 14.3. Transport hazard class(es)

Not applicable

### 14.4. Packing group

Not applicable

### 14.5. Environmental hazards

Dangerous for the environment : No  
Marine pollutant : No  
Other information : No supplementary information available.

### 14.6. Special precautions for user

#### 14.6.1. Overland transport

No additional information available

#### 14.6.2. Transport by sea

No additional information available

#### 14.6.3. Air transport

No additional information available

#### 14.6.4. Inland waterway transport

No additional information available

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions  
Contains no REACH candidate substance  
VOC content : 0 %

#### 15.1.2. National regulations

##### Germany

Water hazard class (WGK) : 1 - slightly hazardous to water  
WGK remark : Classification based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS)

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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### SECTION 16: Other information

Indication of changes:

Original Document.

Data sources

: Chemical Inspection & Regulation Service; accessed at: [http://www.cirs-reach.com/Inventory/Global\\_Chemical\\_Inventories.html](http://www.cirs-reach.com/Inventory/Global_Chemical_Inventories.html)  
ESIS (European chemical Substances Information System; accessed at: <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>  
European Chemicals Agency (ECHA) Registered Substances list.  
Kristen Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.  
National Fire Protection Association. Fire Protection Guide to Hazardous Materials; 10th edition.  
The Organisation for Economic Co-operation and Development (OECD; eChemPortal chemical searches. Accessed at <http://www.echemportal.org/echemportal/substancesearch/substancesearchlink.action>  
TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>

Abbreviations and acronyms

: CAS (Chemical Abstracts Service) number.  
GHS: Globally Harmonized System (of Classification and Labeling) of Chemicals  
OSHA: Occupational Safety & Health Administration.  
TSCA: Toxic Substances Control Act.

Other information

: None.

Full text of R-, H- and EUH-phrases:

Eye Irrit. 2	Serious eye damage/eye irritation Category 2
H319	Causes serious eye irritation
R36	Irritating to eyes.
Xi	Irritant

SDS EU (REACH Annex II)

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*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*