

# Gadolinium Doped Ceria

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 09/18/2014 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  
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

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

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

Nexceris, LLC  
404 Enterprise Drive  
Lewis Center, Ohio 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

### SECTION 2: Hazards identification

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

##### Classification (GHS-US)

Eye Irrit. 2A H319

#### 2.2. Label elements

##### GHS-US labeling



Hazard pictograms (GHS-US) : GHS07  
Signal word (GHS-US) : Warning  
Hazard statements (GHS-US) : H319 - Causes serious eye irritation  
Precautionary statements (GHS-US) : P264 - Wash hands thoroughly after handling  
P280 - Wear eye protection  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove 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	Product identifier	%
Gadolinium Doped Ceria	(CAS No) 66402-68-4	100

Full text of H-phrases: see section 16

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### 3.2. Mixtures

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

- Reactivity : No dangerous reactions known.

### 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/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

## 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.

### 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. Provide good ventilation in process area to prevent formation of vapor.
- Hygiene measures : Wash hands thoroughly after handling.

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### 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
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### 8.2. Exposure controls

Appropriate engineering controls : Avoid dispersal of dust in the air (i.e., 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.

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

Respiratory protection : Where excessive dust may result, use approved respiratory protection equipment. Use air-purifying respirator equipped with particulate filtering cartridges.

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

Color : White/yellow

Odor : Odorless.

Odor threshold : No data available

pH : Not applicable

Relative evaporation rate (butyl acetate=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) : No data available

Vapor pressure : Not applicable

Relative vapor density at 20 °C : No data available

Relative density : No data available

Solubility : insoluble in water.

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : Product is not explosive.

Oxidizing 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.

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### 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 sensitization : 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 :

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

Likely routes of exposure : Inhalation.;Skin and eyes contact.

## SECTION 12: Ecological information

### 12.1. Toxicity

Gadolinium Doped Ceria (Based on Cerium dioxide (1306-38-3))	
LC50 fish 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

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

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### 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 DOT  
Not considered a dangerous good for transport regulations

#### ADR

No additional information available :

#### Transport by sea

No additional information available

#### Air transport

No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Gadolinium Doped Ceria (66402-68-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### CANADA

##### Gadolinium Doped Ceria (66402-68-4)

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR
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##### EU-Regulations

##### Gadolinium Doped Ceria

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances

#### 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

#### 15.3. US State regulations

No additional information available

### SECTION 16: Other information

Indication of changes : Original Document.

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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.  
Krister 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>

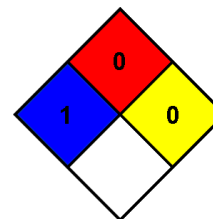
Abbreviations and acronyms : CAS (Chemical Abstracts Service) number.  
GHS: Globally Harmonized System (of Classification and Labeling) of Chemicals  
OSHA: Occupational Safety & Health Administration.  
TSCA: Toxic Substances Control Act.

Other information : None.

### Full text of H-phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
H319	Causes serious eye irritation

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.  
NFPA fire hazard : 0 - Materials that will not burn.  
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

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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.*