

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Name of the substance Cerium (Ce) powder and pieces
Identification number 231-154-9 (EC number)
Synonyms Cerium
Document number C-MSDS0103
Issue date 19-January-2017
Version number 01

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

Identified uses Not available.
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet**Supplier**

Company name Materion Advanced Chemicals Inc.
Address 407 N. 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Division Milwaukee
Telephone 414.212.0257
e-mail advancedmaterials@materion.com
Contact person Noreen Atkinson

1.4. Emergency telephone number**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended**Physical hazards**

Substances and mixtures which, in contact with water, emit flammable gases Category 2

H261 - If in contact with water, releases flammable gases.

Hazard summary May be ignited by heat, sparks or flames.

2.2. Label elements**Label according to Regulation (EC) No. 1272/2008 as amended**

Contains: Cerium

Hazard pictograms

Signal word Warning

Hazard statements

H228 Flammable solid.
H410 Very toxic to aquatic life with long lasting effects.
H400 Very toxic to aquatic life.
H261 If in contact with water, releases flammable gases.

Precautionary statements**Prevention**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P223 Do not allow contact with water.
P231 + P232 Handle under inert gas. Protect from moisture.

P280	Wear protective gloves/eye protection/face protection.
P280	Wear eye protection/face protection.
P273	Avoid release to the environment.
P270	Do not eat, drink, or smoke when using this product.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P240	Ground/bond container and receiving equipment.

Response

P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
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Storage

P402 + P404	Store away from incompatible materials. Store in a dry place. Store in a closed container.
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Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information

None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Cerium	100	7440-45-1 231-154-9	-	-	
Classification:	Flam. Sol. 2;H228, Water-React. 2;H261, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed Direct contact with eyes may cause temporary irritation.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards Flammable solid. In contact with water releases flammable gases.

5.1. Extinguishing media

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Water.

5.2. Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special firefighting procedures	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
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6.3. Methods and material for containment and cleaning up	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Stop the flow of material, if this is without risk. Following product recovery, flush area with water.
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6.4. Reference to other sections	For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling	Protect from moisture. All equipment used when handling the product must be grounded. Use explosion-proof equipment. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).
7.3. Specific end use(s)	Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.

8.2. Exposure controls

Appropriate engineering controls	Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high.
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Individual protection measures, such as personal protective equipment

General information	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
Skin protection	
- Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
- Other	Wear suitable protective clothing. Wear protective gloves. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

Hygiene measures	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
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Environmental exposure controls	Not available.
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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Solid.
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Form	Solid.
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Colour	Not available.
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Odour	Not available.
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Odour threshold	Not available.
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pH	Not available.
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Melting point/freezing point	Not available.
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Initial boiling point and boiling range	Not available.
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Flash point	Not available.
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Evaporation rate	Not available.
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Flammability (solid, gas)	Flammable solid.
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Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
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Flammability limit - upper (%)	Not available.
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Vapour pressure	< 0,0000001 kPa at 25 °C
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Vapour density	Not available.
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Relative density	Not available.
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Solubility(ies)

Solubility (water)	Not available.
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Solubility (other)	Not available.
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Partition coefficient (n-octanol/water)	Not available.
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Auto-ignition temperature	Not available.
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Decomposition temperature	Not available.
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Viscosity	Not available.
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Explosive properties	Not explosive.
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Oxidising properties	Not oxidising.
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9.2. Other information

Molecular formula	Ce
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SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
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10.2. Chemical stability	Risk of ignition.
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10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
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10.4. Conditions to avoid	Exposure to moisture. Heat, flames and sparks. High temperatures. Contact with incompatible materials.
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10.5. Incompatible materials	None known.
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10.6. Hazardous decomposition products	No hazardous decomposition products are known.
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SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
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Information on likely routes of exposure

Inhalation	Due to lack of data the classification is not possible.
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Skin contact	Due to lack of data the classification is not possible.
Eye contact	Due to lack of data the classification is not possible.
Ingestion	Due to lack of data the classification is not possible.
Symptoms	Exposure may cause temporary irritation, redness, or discomfort.
11.1. Information on toxicological effects	
Acute toxicity	No data available.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Due to partial or complete lack of data the classification is not possible.
Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	No data available.
Partition coefficient n-octanol/water (log K_{ow})	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	Not available.
12.6. Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods	
Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN3078
14.2. UN proper shipping name	Cerium, turnings or gritty powder
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
Hazard No. (ADR)	Not available.
Tunnel restriction code	Not available.
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN3078
14.2. UN proper shipping name	CERIUM, turnings or gritty powder
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN3078
14.2. UN proper shipping name	Cerium, turnings or gritty powder
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN3078
14.2. UN proper shipping name	Cerium, turnings or gritty powder
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number	UN3078
14.2. UN proper shipping name	Cerium, turnings or gritty powder
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
14.4. Packing group	II

14.5. Environmental hazards

Marine pollutant No.

EmS Not available.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	Not available.
References	Not available.
Information on evaluation method leading to the classification of mixture	Not applicable.
Training information	Follow training instructions when handling this material.
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