

SAFETY DATA SHEET

Version 8.2
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SDS No. Eternal-Element-ET-CeM-202501
Product Number Eternal-Element-ET-CeM-202501

Cerium

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

1.1 Product identifiers

Product name : Cerium

Product Number : ET-CeM-202501

Brand : Eternal-Element

CAS-No. : 7440-45-1

1.2 Details of the supplier of the safety data sheet

Company : Shanghai Sheeny Metal Mateirals Co.,Ltd.

Room 210, Kedi Building,

No. 688 Huajiang Road, Jiading District,

SHANGHAI

201800 SHANGHAI CHINA

上海斯年金属材料有限公司

上海市嘉定区华江公路688号凯迪大厦210室

邮政编码: 201800

Telephone : +86 16602150044

Fax : +86 16602150044

1.3 Emergency telephone

Emergency Phone # : +86 4006632276

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

Identified uses : For R&D use only. Not for pharmaceutical, household or other uses.

SECTION 2: Hazards identification

Summary of emergency

Ingots gray odorless Flammable solid., In contact with water releases flammable gas., Harmful if swallowed, in contact with skin or if inhaled., Causes skin irritation., Causes serious eye irritation., May cause respiratory irritation., Causes damage to organs., Very toxic to aquatic life with long lasting effects. Show this material safety data sheet to the doctor in attendance. After inhalation: fresh air. In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. After eye contact: rinse out with plenty of water., Remove contact lenses. After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell. Combustible. Development of hazardous combustion gases or vapours possible in the event of fire. Violent reactions possible with: Strong acids, Halogens, Zinc

2.1 GHS Classification

Flammable solids (Category 1), H228

Substances and mixtures which in contact with water emit flammable gases (Category 2), H261

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Skin corrosion/irritation (Category 2), H315

Serious eye damage/eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 1), H370

Specific target organ toxicity - single exposure (Category 3), respiratory tract irritation, H335

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 1), H410

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)

H228

Flammable solid.

H261

In contact with water releases flammable gas.

H302 + H312 + H332

Harmful if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

H370

Causes damage to organs.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

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.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P260	Do not breathe dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
Response	
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311	IF exposed or concerned : Call a POISON CENTER/ doctor.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
Storage	
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	
P501	Dispose of contents/ container to an approved waste disposal plant.

Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard statement(s)

H228	Flammable solid.
H261	In contact with water releases flammable gas.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H370	Causes damage to organs.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary

none

statement(s)

2.3 Physical and chemical hazards

H228 Flammable solid.

H261 In contact with water releases flammable gas.

2.4 Health hazards

H302 Harmful if swallowed.

H332 Harmful if inhaled.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H370 Causes damage to organs.

H335 May cause respiratory irritation.

2.5 Environmental hazards

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

2.6 Other hazards - none

SECTION 3: Composition/information on ingredients

Substance / Mixture : Substance

3.1 Substances

Formula : Ce

Molecular weight : 140.12 g/mol

CAS-No. : 7440-45-1

EC-No. : 231-154-9

Hazardous ingredients

Component	Classification	Concentration
Cerium, slabs, ingots or rods,lumps,foil		
	Flammable solids Category 1; Substances and mixtures which in contact with water emit flammable gases Category 2; Acute toxicity Category 4; Skin corrosion/irritation Category 2; Serious eye damage/eye irritation Category 2A; Specific target organ toxicity - single exposure Category 1; Specific target organ toxicity - single exposure Category 3; Short-term (acute) aquatic hazard Category 1; Long-term (chronic) aquatic hazard	<= 100 %



	Category 1; H228, H261, H302, H332, H312, H315, H319, H370, H335, H400, H410	
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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

4.4 Notes to physician

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

cerium oxides

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

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

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep away from heat and sources of ignition.
Handle and store under inert gas.

Storage class

Storage class (TRGS 510) : 4.1B: Flammable solid hazardous materials

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cerium, slabs, ingots or rods, lumps, foil	7440-45-1	PC-TWA	2.5 mg/m ³	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|--|---|
| a) Physical state | Ingots |
| b) Color | gray |
| c) Odor | odorless |
| d) Melting point/freezing point | Melting point/range: 795 °C - lit. |
| e) Initial boiling point and boiling range | 3,443 °C - lit. |
| f) Flammability (solid, | The substance or mixture is a flammable solid with the category |



gas)	1.Flammable Solid - Test N.1: Test method for readily combustible solids
g) Upper/lower flammability or explosive limits	No data available
h) Flash point	Not applicable
i) Autoignition temperature	290.5 °C at 1,013.25 hPa - Relative self-ignition temperature for solids
j) Decomposition temperature	No data available
k) pH	No data available
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	No data available
n) Partition coefficient: n-octanol/water	Not applicable for inorganic substances
o) Vapor pressure	< 0.01 hPa at 696 °C
p) Density	6.67 g/mL at 25 °C - lit.
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	No data available
t) Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.2 Possibility of hazardous reactions

Violent reactions possible with:

Strong acids

Halogens

Zinc

10.3 Conditions to avoid

no information available

10.4 Incompatible materials

No data available



10.5 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 5,000 mg/kg

Remarks: (in analogy to similar compounds)

Inhalation : No data available

LC50 Inhalation - Rat - male and female - 4 h - > 5.05 mg/l - dust/mist

(OECD Test Guideline 403)

Remarks: (in analogy to similar products)

Dermal : No data available

Skin corrosion/irritation

Remarks: No data available

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Test Type : Mutagenicity (mammal cell test): chromosome aberration.

Test system : Human lymphocytes

Metabolic activation : with and without metabolic activation

Result: negative

Remarks: (ECHA)

(in analogy to similar products)

Carcinogenicity

No data available

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

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LL50 - Oncorhynchus mykiss (rainbow trout) - > 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LL50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EL50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
	static test NOELR - Desmodesmus subspicatus (green algae) - 25 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209) Remarks: (above the solubility limit in the test medium)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOELR - Daphnia magna (Water flea) - > 100 mg/l - 21 d (OECD Test Guideline 211)

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

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.



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Page 10 of 12

SECTION 14: Transport information**14.1 UN number**

ADR/RID : 1333

IMDG : 1333

IATA-DGR: 1333

14.2 UN proper shipping name

ADR/RID : CERIUM

IMDG : CERIUM

IATA-DGR: Cerium

14.3 Transport hazard class(es)

ADR/RID : 4.1

IMDG : 4.1

IATA-DGR: 4.1

14.4 Packaging group

ADR/RID : II

IMDG : II

IATA-DGR: II

14.5 Environmental hazards

ADR/RID : no

IMDG Marine pollutant: no

IATA-DGR: no

14.6 Special precautions for user

Based on chemical properties, choose appropriate tools and conditions of transport.

Transporting tools shall be equipped with appropriate and sufficient firefighting equipment and emergency leaking installations. If transporting by road, please go along the specified route.

14.7 Incompatible materials

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulatory information****Law on the Prevention and Control of Occupational Diseases****Regulations on Safety Management of Hazardous Chemicals**

Catalogue of Hazardous Chemicals : Listed

Measures on the Environmental Administration of New Chemical Substances Registration

Registration/Notification number :

B1A222214260

Downstream users need to comply with the conditions of safe use of the chemical, understand the environmental and health hazard and risk management measures identified on the SDS as well as the local/national regulations concerning the chemical.

Other regulations

Please pay attention on the waste treatment should also comply with local regulations requirement.

SECTION 16: Other information

- Full text of H-Statements referred to under sections 2 and 3.

H228	Flammable solid.
H261	In contact with water releases flammable gas.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H370	Causes damage to organs.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Eternal-Element Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.eternal-element.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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