

SAFETY DATA SHEET

1. Chemical Product and Company Identification

ProductName Ce (Grain, Chip, Target, Code # : CEE01GB, CEE01CB, CEE02CB)

Reference NO. CEE01GAG-001

Creation Date 2025/11/05

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Product Use For research purposes

Restriction of use Seek expert judgment when using the product for applications other than those recommended

2. Hazards identification

[GHS CLASSIFICATION]

PHYSICAL HAZARDS

Flammable solids : Category1

HEALTH HAZARDS

Specific target organ toxicity(single exposure) : Category1(Blood)

ENVIRONMENTAL HAZARDS

Hazard to the aquatic environment (acute) : Category1

Hazard to the aquatic environment (chronic) : Category1

[GHS LABEL ELEMENTS]

Pictogram



Signal Word : Danger

Hazard Statement : Flammable solid(H228)
: Causes damage to organs (Blood)(H370)
: Very toxic to aquatic life with long lasting effects(H410)

Precautionary Statement

Safety measures : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.(P210)
: Ground and bond container and receiving equipment.(P240)
: Use explosion-proof electrical/ventilating/lighting equipment. (P241)
: Do not breathe dust/fume/gas/mist/vapours/spray.(P260)
: Wash the competent authority to specify parts of the body to be washed after handling. thoroughly after handling.(P264)
: Do not eat, drink or smoke when using this product.(P270)

- : Avoid release to the environment.(P273)
- : Wear protective gloves/protective clothing/eye protection/face protection.(P280)
- First aid measures : Specific treatment.(P321)
- : Collect spillage.(P391)
- : IF exposed or concerned: Call a POISON CENTER/doctor(P308+P311)
- : In case of fire: Use appropriate media to extinguish. (P370+P378)
- Storage : Store locked up.(P405)
- Disposal : Dispose of contents/container in accordance with local/regional/national/international regulation.(P501)

3. Composition/information on ingredients

Classification of the substance or mixture : Substance

| Chemical name | Concentration(%) | CAS RN® |
|---------------|------------------|-----------|
| Cerium | 100.00 | 7440-45-1 |

4. First aid measures

- Inhalation : Remove the exposed person immediately and provide fresh air. Get medical attention.
- Skin contact : Promptly flush contaminated skin with soap or mild detergent and water. Contact Dermatologist if irritation continues.
- Eye contact : Rinse cautiously with water for 15 minutes.Get medical attention from an ophthalmologist. When washing your eyes, hold your eyelids open with your fingers to allow water to reach every corner of your eyeballs and eyelids.
- Ingestion : Rinse mouth and throat with water. Get medical attention immediately.
- Necessary precautions for protection of person performing first aid measures : Rescue workers wear appropriate eye and skin protection equipment according to the situation.
- Special precautions for doctors : The doctor should carry out treatment that corresponds to the patient's symptoms.

5. Fire fighting measures

- Suitable extinguishing media : Dry sand, perlite, calcium oxide, metal fire extinguishers.
- Unsuitable extinguishing media : Water, water foam
- Special hazards arising from the substance or mixture : Fire extinguishing water may cause pollution.
- : Do not use water in metal powder fire.
- Special protective equipment and precautions for fire-fighters : Wear appropriate respiratory air and the protective clothing (heat resistance).

6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures : Remove all ignition sources.
- : Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapor/dusts.
Indoor leakage: Ventilate as much as possible until the cleaning is completed.
Outdoor leakage: Work from the windward and evacuate the leeward crowd.
- Environmental precautions : Prevent flow out to river, etc. so as not to badly affect.
- Methods and material for containment and cleaning up : Shut off leak if without risk.
Avoid unnecessary contacts with spills.
- : Gather up, pack in closed DOT-approved waste container as much as possible.
Carefully collect remnant and move to a safe place.
- Measures to prevent secondary disasters : Prevent leakage into sewer, rivers and etc., and take measures to prevent environmental pollution.

7. Handling and storage

- Handling
- Technical measures : No information available
- Precautions for safe handling : Air and moisture sensitive. Light sensitive.
Keep away from heat, sparks and naked flame.
Electrically ground all equipment when handling this material and use only non-sparking tools.
Make the electrical equipment explosion-proof.
- Avoid contact : Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen.
Avoid prolonged or repeated exposure.
- Hygiene measures : Do not eat, drink or smoke when using this product.
- Storage
- Safe storage conditions : Store the material in a sealed container.
Store in a cool, dry, well ventilated and dark place away from incompatible materials.
- : Keep away from any heat, direct sunlight, sparks, and flames.
- : Keep away from incompatible materials.
- : Keep away from moisture and maintain the state before opening (such as storing in inert gas or in mineral oil).
- : Store molded products such as targets in an unopened condition.
- Safe container packaging materials : No information available

8. Exposure controls / Personal protection

Control parameters

| Chemical name | ACGIH | OSHA |
|---------------|-------|------|
| Cerium | - | - |

- Equipment : Install the appropriate general ventilation equipment, local exhaust ventilation in the workplace.

Personal protection

- Respiratory protection : Wear appropriate NIOSH/MSHA-approved respirator.
- Hand protection : Wear appropriate NIOSH/MSHA-approved impervious gloves.
- Eye and face protection : Wear appropriate NIOSH/MSHA-approved safety goggles.
- Skin and body protection : Wear appropriate NIOSH/MSHA-approved impervious protective wear, protective boots.

| | |
|---------------------|--|
| Special precautions | : Regularly check your protective gear. |
| | : The notes for the table are as follows. |
| | D: Dust, M: Mist, F: Fumes, I: Inhalable particles, R: Respirable particles, IFV: Inhalable particles and vapors, T: Total dust, V: Vapors, C: Ceiling limit |

9. Physical and chemical properties

| | |
|--|---|
| Physical state | : Solid |
| Color | : Silver white |
| Odour | : No information available |
| Melting point/Freezing point | : 799°C |
| Boiling point, initial boiling point and boiling range | : 3426°C |
| Flammability | : Combustible |
| Range of explosion (lower bound - upper bound) | : No information available |
| Flash point | : No information available |
| Autoignition temperature | : No information available |
| Decomposition temperature | : No information available |
| pH | : No information available |
| Kinematic viscosity | : No information available |
| Solubility | : It dissolves gradually in cold water and in hot water, generating hydrogen. It dissolves in acid, generating hydrogen. |
| Partition coefficient (n-octanol/water) | : No information available |
| Vapor pressure | : No information available |
| Density/Specific gravity | : 6.749g/cm ³ |
| Relative vapor density | : No information available |
| Particle characteristics | : No information available |
| Other | : F.W. : 140.1 Oxidizing : None |

10. Stability and reactivity

| | |
|------------------------------------|--|
| Reactivity | : Decomposes by reacting with moisture in the atmosphere. |
| Chemical stability | : Stable in closed container under inert gas (at room temperature). |
| Possibility of hazardous reactions | : No information available |
| Conditions to avoid | : Keep away from direct sunlight. Store in a cool, dark place. : High temperature, heat, ignition source. |
| Incompatible materials | : Oxygen, oxidizing agents, acids |
| Hazardous decomposition products | : No information available |

11. Toxicological information

| | |
|------------------------|--------------------------|
| Acute toxicity(oral) | No information available |
| Acute toxicity(dermal) | No information available |

Acute toxicity(inhalation:gases)

No information available

Acute toxicity(inhalation:vapours)

No information available

Acute toxicity(inhalation:dusts and mists)

No information available

Skin corrosion/Skin irritation

No information available

Serious eye damage/Eye Irritation

No information available

Respiratory sensitizer

No information available

Skin sensitizer

No information available

Germ cell mutagenicity

No information available

Carcinogenicity

No information available

Toxic to reproduction/Effects on or via lactation

No information available

Specific target organ toxicity(single exposure)

Cerium : Category1(Blood)

Specific target organ toxicity(repeated exposure)

No information available

Aspiration hazard

No information available

12. Ecological information

Hazard to the aquatic environment (acute)

Cerium : Category1

Hazard to the aquatic environment (chronic)

Cerium : Category1

Hazardous to the ozone layer

No information available

Ecotoxicity/Fish toxicity

No information available

Ecotoxicity/ Invertebrate toxicity

Hyalomma azteca LC50(168h) = 0.032 mg/L (AQUIRE, 2010)(Cerium)

Ecotoxicity/ Algal toxicity

No information available

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility in soil

No information available

13. Disposal considerations

Remained waste

: Discard in accordance with the standards of the local government and relevant legislation.

A polluted container and
packing

: When disposing of empty containers, empty containers are
processed in accordance with the standards of the local government
as well as the related laws and regulations and waste disposal
method after contents are completely removed.

14. Transport information

UN number : 1333

Guideline Number : 170

Shipping name : CERIUM, slabs, ingots or rods

UN Class : Class4 Flammable solids; substances liable to spontaneous
combustion; substances
which, on contact with water, emit flammable gases

Packing group : II

Subsidiary risk(s) : -

MARINE POLLUTANT : Applicable

Transport in bulk according to
MARPOL 73/78,Annex II ,and
the IBC code : Not applicable

Special safety measures for
transport or means of transport : Follow "7. Handling and storage"

: Check no leak of container, handle without overturning, falling and
damaging,then reliably prevent from cargo shift.

Domestic regulations

Ground transport : Follow the transportation method specified in the Fire Service Law
and the Industrial Safety and Health Law.

Marine transport : Follow the transportation method specified in the Ship Safety Law.

Air transport : Follow the transportation method specified in the Aviation Law.

15. Regulatory information

Follow relevant national and local regulations.

16. Other information

This " Safety Data Sheet(SDS)" is for provision of information, and it does not represent a guarantee the
properties or safeties of the product.

Since not all materials and literature have been investigated, information may be omitted, and changes may
occur in the content due to the discovery of new findings or corrections of previous theories.

The information contained herein is based on information in our possession, but we do not guarantee the
completeness of the information.

It is subject to revision based on changes in laws and regulations and new findings.

When using this information for important decisions, we recommend that you carefully review the source of
the information or verify it through testing.

Values of ingredients, content, physicochemical properties, etc., are not quality assurance values.

Prior to use, please investigate the laws and regulations of the organization, area and country where the
product is to be used.

The information is intended to ordinary usage, in case of special handling, sufficient care should be taken.