MSDS – Calcium Metal

MATERIAL SAFETY DATA SHEET (MSDS) / SAFETY DATA SHEET (SDS)

1. Identification

Product Name: Calcium Metal
Synonyms: Calcium, Ca
CAS Number: 7440-70-2
EC Number: 231-179-5
Molecular Formula: Ca
Molecular Weight: 40.08 g/mol
Recommended Use: Laboratory reagent, metallurgy, chemical synthesis
Restrictions on Use: Not for consumer use

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2. Hazard(s) Identification

GHS Classification:

- **Water-reactive solid – Category 1**
- **Flammable solid – Category 2**
- **Skin corrosion/irritation – Category 1B**
- **Serious eye damage – Category 1**

Signal Word: DANGER
Hazard Statements:

- **H260: In contact with water releases flammable gases which may ignite spontaneously**
- **H228: Flammable solid**
- **H314: Causes severe skin burns and eye damage**

Precautionary Statements:

- **P223: Do not allow contact with water**
- **P231 + P232: Handle under inert gas; protect from moisture**
- **P280: Wear protective gloves, clothing, eye and face protection**
- **P370 + P378: In case of fire, use Class D extinguishing agent**

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3. Composition / Information on Ingredients

Component	CAS No.	Concentration
Calcium (metal)	7440-70-2	≥ 99%

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4. First-Aid Measures

Inhalation:
Move person to fresh air. Seek medical attention if symptoms persist.
Skin Contact:
Brush off dry material. Do NOT use water. Cover with mineral oil. Seek immediate medical attention.
Eye Contact:
Do not rinse with water. Cover with dry sterile dressing and seek immediate medical attention.
Ingestion:
Do not induce vomiting. Rinse mouth without water. Seek immediate medical attention.
Most Important Symptoms:
Severe burns, inflammation, tissue damage, fire risk.

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5. Fire-Fighting Measures

Suitable Extinguishing Media:
Class D fire extinguisher (dry powder), dry sand

Unsuitable Media:
Water, foam, CO_2
Specific Hazards:
Reacts violently with water producing hydrogen gas; explosion risk.
Protective Equipment:
Full protective gear and self-contained breathing apparatus (SCBA)

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6. Accidental Release Measures

- **Evacuate area**
- **Eliminate all ignition sources**
- **Do not use water**
- **Collect material under dry inert atmosphere**
- **Cover with mineral oil for temporary storage**

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7. Handling and Storage
Handling:

- **Handle under inert gas (argon or nitrogen)**
- **Avoid moisture, heat, sparks, and open flame**

Storage:

- **Store under mineral oil or inert atmosphere**
- **Keep in tightly sealed container**
- **Store in cool, dry, well-ventilated area**

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8. Exposure Controls / Personal Protection
Exposure Limits:
No OSHA or ACGIH exposure limits established.
Engineering Controls:
Inert gas glove box or dry atmosphere
Personal Protective Equipment (PPE):

- **Flame-resistant lab coat**
- **Chemical-resistant gloves**
- **Safety goggles and face shield**
- **Respiratory protection if dust or fumes present**

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9. Physical and Chemical Properties

- **Appearance: Silvery-white metal**
- **Odor: Odorless**
- **Melting Point: ~842 °C**
- **Boiling Point: ~1484 °C**
- **Density: 1.55 g/cm³**
- **Solubility: Reacts violently with water**
- **Reactivity: Highly reactive with moisture and acids**

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10. Stability and Reactivity
Stability: Stable under dry, inert conditions
Reactivity: Reacts with water, acids, halogens
Hazardous Decomposition Products: Hydrogen gas, calcium oxide

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11. Toxicological Information

- **Skin contact: Severe burns**
- **Eye contact: Permanent damage possible**

- **Inhalation: Irritating to respiratory tract**
- **Chronic Effects: Not fully evaluated**

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12. Ecological Information

- **Highly reactive with water; may alter aquatic pH**
- **Avoid environmental release**

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13. Disposal Considerations

- **Dispose under inert conditions**
- **Follow local, regional, and national regulations**
- **Do not dispose in water or drains**

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14. Transport Information
UN Number: UN 1401
Proper Shipping Name: Calcium
Hazard Class: 4.3 (Dangerous When Wet)
Packing Group: II

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15. Regulatory Information

- **OSHA Hazard Communication Standard: Hazardous**
- **GHS Compliant**

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16. Other Information
Revision Date: (10th February 2024)