



SIGMA-ALDRICH

## Material Safety Data Sheet

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Version 1.60

### Section 1 - Product and Company Information

**Product Name** Calcium hydride, Reagent grade, 95%  
**Product Number** 208027  
**Brand** Sigma-Aldrich

**Company** Sigma-Aldrich  
**Street Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 800-325-5832  
**Fax:** 800-325-5052  
**Emergency Phone:** 314-776-6555

### Section 2 - Composition/Information on Ingredient

| Substance Name  | CAS #     | SARA 313 | EC no     | Annex I Index Number |
|-----------------|-----------|----------|-----------|----------------------|
| CALCIUM HYDRIDE | 7789-78-8 | No       | 232-189-2 | 001-004-00-5         |

**Formula** CaH<sub>2</sub>  
**Synonyms**

### Section 3 - Hazards Identification

**Emergency Overview**  
Flammable (USA) Highly Flammable (EU), Corrosive.  
Reacts violently with water, liberating extremely flammable gases. Causes burns.

**HMIS Rating**  
Health: 3 Flammability: 3 Reactivity: 2 Special Hazard(s): Water reactive

**NFPA Rating**  
Health: 3 Flammability: 3 Reactivity: 2 Special Hazard(s): Water reactive

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

**Inhalation Exposure**  
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Dermal Exposure**  
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

**Eye Exposure**  
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

### Section 5 - Fire Fighting Measures

**Flammable Hazards** Yes

**Explosion Hazards**  
Material readily reacts with water generating flammable and/or explosive hydrogen gas

**Autoignition Temp:** > 300 °C **Flammability:** Yes

#### Extinguishing Media

##### Suitable

Use approved class D extinguishers or smother with dry sand, dry ground limestone, or dry clay.

##### Unsuitable

Do not use water. Do not use carbon dioxide extinguisher on this material. Do not use halocarbon extinguishers.

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Flammable solid. Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

#### Procedure to be Followed in Case of Leak or Spill

Evacuate area. Shut off all sources of ignition.

#### Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Handle under nitrogen.

#### Storage

##### Suitable

Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

##### Incompatible Materials

Do not allow contact with water.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Safety shower and eye bath. Use only in a chemical fume hood.

#### Personal Protective Equipment

##### Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a fullface particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

**Hand**  
Compatible chemical-resistant gloves.  
**Eye**  
Chemical safety goggles.

**General Hygiene Measures**  
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

## Section 9 - Physical/Chemical Properties

| Appearance                   | Color                 | Form   |
|------------------------------|-----------------------|--------|
|                              | Faintly grey          | Powder |
| <b>Molecular Weight</b>      | 42.1 AMU              |        |
| <b>pH</b>                    | N/A                   |        |
| <b>BP/BP Range</b>           | 600 °C                |        |
| <b>MP/MP Range</b>           | 816 °C                |        |
| <b>Freezing Point</b>        | N/A                   |        |
| <b>Vapor Pressure</b>        | N/A                   |        |
| <b>Vapor Density</b>         | N/A                   |        |
| <b>Saturated Vapor Conc.</b> | N/A                   |        |
| <b>SG/Density</b>            | 1.9 g/cm <sup>3</sup> |        |
| <b>Bulk Density</b>          | N/A                   |        |
| <b>Odor Threshold</b>        | N/A                   |        |
| <b>Volatile%</b>             | N/A                   |        |
| <b>VOC Content</b>           | N/A                   |        |
| <b>Water Content</b>         | N/A                   |        |
| <b>Solvent Content</b>       | N/A                   |        |
| <b>Evaporation Rate</b>      | N/A                   |        |
| <b>Viscosity</b>             | N/A                   |        |
| <b>Partition Coefficient</b> | N/A                   |        |
| <b>Decomposition Temp.</b>   | N/A                   |        |
| <b>Flash Point °F</b>        | N/A                   |        |
| <b>Flash Point °C</b>        | N/A                   |        |
| <b>Explosion Limits</b>      | N/A                   |        |
| <b>Flammability</b>          | N/A                   |        |
| <b>Autoignition Temp</b>     | > 300 °C              |        |
| <b>Solubility</b>            | N/A                   |        |

N/A = not available

## Section 10 - Stability and Reactivity

**Stability**  
**Conditions to Avoid**  
Do not allow water to enter container because of violent reaction.  
**Materials to Avoid**  
Alcohols, Oxidizing agents.

**Hazardous Decomposition Products**  
**Hazardous Decomposition Products**  
Calcium oxide  
**Hazardous Decomposition Products Formed Upon Contact with Water**  
Hydrogen gas.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

## Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
Causes burns.  
**Skin Absorption**  
May be harmful if absorbed through the skin.  
**Eye Contact**  
Causes burns.  
**Inhalation**  
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.  
**Ingestion**  
May be harmful if swallowed.

**Signs and Symptoms of Exposure**  
Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**RTECS Number:** N/A

## Section 12 - Ecological Information

No data available.

## Section 13 - Disposal Considerations

**Appropriate Method of Disposal of Substance or Preparation**  
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

## Section 14 - Transport Information

**DOT**  
**Proper Shipping Name:** Calcium hydride  
**UN#:** 1404  
**Class:** 4.3  
**Packing Group:** Packing Group I  
**Hazard Label:** Dangerous when wet.  
**PIH:** Not PIH

**IATA**  
**Proper Shipping Name:** Calcium hydride  
**IATA UN Number:** 1404  
**Hazard Class:** 4.3  
**Packing Group:** I  
**Not Allowed - Aircraft:** Cargo aircraft only. Not permitted on passenger aircraft.

## Section 15 - Regulatory Information

### EU Directives Classification

**Symbol of Danger:** F

**Indication of Danger**

Highly Flammable

**Risk Statements** R: 15

Contact with water liberates extremely flammable gases.

**Safety Statements** S: 7/8 24/25 43

Keep container tightly closed and dry. Avoid contact with skin and eyes. In case of fire, use special powder for metal fire. Never use water.

### US Classification and Label Text

**Indication of Danger**

Flammable (USA) Highly Flammable (EU), Corrosive.

**Risk Statements**

Reacts violently with water, liberating extremely flammable gases. Causes burns.

**Safety Statements**

Keep container tightly closed and dry. Avoid contact with skin and eyes. In case of fire, use dry powder. Never use water.

### United States Regulatory Information

**SARA Listed:** No

### Canada Regulatory Information

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** Yes

**NDSL:** No

## Section 16 - Other Information

### Disclaimer

For R&D use only. Not for drug, household or other uses.

### Warranty

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. SigmaAldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

