

# SAFETY DATA SHEET

according to the OSHA  
Hazard Communication Standard

Version 6.9  
Revision Date 07/14/2026  
Print Date 07/15/2026

## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Calcium hydride

Product Number : 213268  
Brand : Sigma-Aldrich  
Index-No. : 001-004-00-5  
CAS-No. : 7789-78-8

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

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Chemicals which, in contact with water, emit flammable gases : Category 1

Skin irritation : Category 2

Eye irritation : Category 2A

### Other hazards

None known.

### GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H260 In contact with water releases flammable gases which may ignite spontaneously.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.

Precautionary statements :

#### Prevention:

P223 Do not allow contact with water.

P231 + P232 Handle under inert gas. Protect from moisture.

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face protection.

#### Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

#### Storage:

P402 + P404 Store in a dry place. Store in a closed container.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

---

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

CAS-No. : 7789-78-8

**Components**

| Chemical name   | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|-----------------|-------------------|-----------------------|--------------|
| calcium hydride | 7789-78-8*        | $\geq 90 - \leq 100$  | -            |

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

---

**SECTION 4. FIRST AID MEASURES**

General advice : Show this 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. Call in ophthalmologist. Remove contact lenses.

If swallowed : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

---

**SECTION 5. FIREFIGHTING MEASURES**

Suitable extinguishing : Carbon dioxide (CO<sub>2</sub>)

Sigma-Aldrich - 213268

Page 3 of 13



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.

---

## SECTION 7. HANDLING AND STORAGE

For precautions see section 2 GHS label elements

Advice on safe handling : Keep workplace dry. Do not allow product to come into contact with water.

Further information on storage conditions : Tightly closed. Keep away from heat and sources of ignition.

Materials to avoid : Never allow product to get in contact with water during storage.

Storage class : 4.3, Hazardous materials, which set free flammable gases upon contact with water

Recommended storage temperature : Recommended storage temperature see product label.

---

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

**Engineering measures** : No data available

### Personal protective equipment

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.

Recommended Filter type: : Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to

the instructions of the producer. These measures have to be properly documented.

#### Hand protection

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material                 | : Nitrile rubber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Break through time       | : 480 min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Glove thickness          | : 0.11 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Protective index         | : Full contact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Manufacturer             | : Dermatril® (KCL 740 / Aldrich Z677272, Size M)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Material                 | : Nitrile rubber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Break through time       | : 480 min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Glove thickness          | : 0.11 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Protective index         | : Splash contact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Manufacturer             | : Dermatril® (KCL 740 / Aldrich Z677272, Size M)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Manufacturer             | : data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Remarks                  | : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.<br>If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. |
| Eye protection           | : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).<br>Safety glasses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Skin and body protection | : protective clothing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Hygiene measures         | : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

---

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Sigma-Aldrich - 213268

Page 6 of 13

|                                                     |                                |
|-----------------------------------------------------|--------------------------------|
| Colour                                              | : light grey                   |
| Odour                                               | : odourless                    |
| Odour Threshold                                     | : No data available            |
| pH                                                  | : No data available            |
| Melting point/ range                                | : 1501 °F / 816 °C             |
| Boiling point/boiling range                         | : 1112 °F / 600 °C (1,013 hPa) |
| Flash point                                         | : Not applicable               |
| Evaporation rate                                    | : No data available            |
| Flammability (solid, gas)                           | : No data available            |
| Flammability (liquids)                              | : No data available            |
| Burning rate                                        | : No data available            |
| Upper explosion limit /<br>Upper flammability limit | : No data available            |
| Lower explosion limit /<br>Lower flammability limit | : No data available            |
| Vapour pressure                                     | : No data available            |
| Relative vapour density                             | : No data available            |
| Relative density                                    | : No data available            |
| Density                                             | : 1.900 g/cm <sup>3</sup>      |
| Water solubility                                    | : No data available            |
| Partition coefficient: n-<br>octanol/water          | : No data available            |
| Autoignition temperature                            | : > 572 °F / > 300 °C          |
| Decomposition<br>temperature                        | : 1112 °F / 600 °C             |
| Viscosity, dynamic                                  | : No data available            |

Sigma-Aldrich - 213268

Page 7 of 13

|                          |                     |
|--------------------------|---------------------|
| Viscosity, kinematic     | : No data available |
| Flow time                | : No data available |
| Explosive properties     | : No data available |
| Oxidizing properties     | : none              |
| Molecular weight         | : 42.09 g/mol       |
| Particle characteristics |                     |
| Particle size            | : No data available |

---

## SECTION 10. STABILITY AND REACTIVITY

|                                    |                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | : The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.                                                                                                                                                               |
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) .                                                                                                                                                                                                                                                                 |
| Possibility of hazardous reactions | : Risk of ignition or formation of inflammable gases or vapours with:<br>Water<br>(generation of hydrogen)<br>Alcohols<br>halogens<br>fluorides<br>Violent reactions possible with:<br>Oxidizing agents<br>sulfuric acid<br>hydrochloric acid<br>silver compounds<br>Risk of explosion with:<br>perchlorates<br>chlorates<br>bromates<br>iodates<br>Acids |
| Conditions to avoid                | : Do not allow water to enter container because of violent reaction.<br>Air<br><br>Moisture.                                                                                                                                                                                                                                                              |
| Incompatible materials             | : No data available                                                                                                                                                                                                                                                                                                                                       |

Sigma-Aldrich - 213268

Page 8 of 13



Hazardous decomposition : In the event of fire: see section 5 products

---

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

#### Skin corrosion/irritation

Remarks: Causes skin irritation.

#### Serious eye damage/eye irritation

Remarks: Causes serious eye irritation.

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### 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

Cough, Shortness of breath, Headache, Nausea, Vomiting

---

## SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Other adverse effects****Components:****calcium hydride:**

Additional ecological information : No data available

**Endocrine disrupting properties**

No data available

---

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

---

**SECTION 14. TRANSPORT INFORMATION****International Regulations****IATA-DGR**

UN/ID No. : UN 1404  
Proper shipping name : Calcium hydride  
Class : 4.3  
Packing group : I  
Labels : Division 4.3 - Substances which in contact with water emit flammable gases  
Packing instruction (cargo aircraft) : 487  
Packing instruction (passenger aircraft) : Not permitted for transport

**IMDG-Code**

UN number : UN 1404  
Proper shipping name : CALCIUM HYDRIDE  
  
Class : 4.3  
Packing group : I  
Labels : 4.3  
EmS Code : F-G, S-O

Sigma-Aldrich - 213268

Page 10 of 13

Marine pollutant : no

### **Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

### **National Regulations**

#### **49 CFR**

UN/ID/NA number : UN 1404

Proper shipping name : Calcium hydride

Class : 4.3

Packing group : I

Labels : Division 4.3 - Substances which in contact with water  
emit flammable gases

ERG Code : 138

Marine pollutant : no

Poison Inhalation Hazard : No

### **Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

---

## **SECTION 15. REGULATORY INFORMATION**

### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### **US State Regulations**

#### **Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The components of this product are reported in the following inventories:**

US TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

---

**SECTION 16. OTHER INFORMATION**

**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2025 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

Revision Date : 07/14/2026

US / EN