

## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Desulfurization Calcium Carbide      **CHEMICAL NAME:** Calcium Carbide

**CHEMICAL FAMILY:** Metallic Carbide      **FORMULA:** CaC<sub>2</sub>

**PRODUCT USE:** Blast furnace iron desulfurization

**MANUFACTURER'S NAME:** Carbide Industries, LLC

**ADDRESS:** 4400 Bells Lane  
Louisville, Kentucky 40211

P. O. Box 3727  
Louisville, Kentucky 40201

**PHONE:** 1-800-626-2578

**WEB ADDRESS:** [www.carbidellc.com](http://www.carbidellc.com)

**EMERGENCY PHONE:** Carbide Industries 1-502-775-4123 (24 hr.)  
Chemtrec 1-800-424-9300

## SECTION 2 - HAZARDS IDENTIFICATION

### Hazard Classification:

- Substance which in contact with water emits flammable gas – Category 1
- Causes serious eye damage – Category 1
- Causes skin irritation – Category 2

**DANGER**



### HAZARD STATEMENTS:

- IN CONTACT WITH WATER, RELEASES FLAMMABLE GASES WHICH MAY IGNITE SPONTANEOUSLY.
- CAUSES SKIN IRRITATION.
- CAUSES SERIOUS EYE DAMAGE.
- MAY CAUSE RESPIRATORY IRRITATION.

## PRECAUTIONARY STATEMENTS:

- No open flames, no sparks, no smoking
- Keep away from any possible contact with water, because of violent reaction and possible flash fire.
- Protect from moisture. Store in a dry place. Store in a closed container.
- Avoid contact with eyes and skin.
- Wear appropriate personal protective equipment, avoid direct contact.
- Wear protective eyewear (goggles, face shield and/or safety glasses).
- Avoid breathing dust.
- Wash skin thoroughly after handling.
- IF IN EYES: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- IF INHALED: Remove victim to fresh air and keep at rest. Get medical attention.
- IN CASE OF FIRE: Use ABC, dry powder, or dry sand. Do not use water! Do not use foam!

**CHRONIC EFFECTS:** No systemic effects are known. Prolonged and repeated exposure may cause dry, cracked skin; eyes may show irritation around lids.

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Inhalation may aggravate asthma and inflammatory or fibrotic pulmonary disease. Because of its irritating properties, this material may aggravate an existing dermatitis.

## SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	PERCENTAGE
Calcium Carbide	75-20-7	70% - 80%
Calcium Hydroxide	1305-62-0	Less than 5%

No other impurities relevant for classification and labelling.

## SECTION 4 - FIRST AID MEASURES

### FIRST AID PROCEDURES:

- **INHALATION:** Remove to fresh air. Get prompt medical attention.
- **EYES:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- **SKIN:** Brush off excess material, flush with copious amounts of water and wash affected area with soap and water. White vinegar (4% acetic acid) may be used to remove residual lime.
- **INGESTION:** Dilute by drinking water or milk. **DO NOT** induce vomiting. Get prompt medical attention.

**NOTE TO PHYSICIANS:** Bodily contact with fine particles of calcium carbide will rapidly give rise to the formation of calcium hydroxide. Health effects and the appropriate medical treatment mirror those appropriate for alkali hydroxides.

## SECTION 5 - FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES:** Calcium carbide is not flammable. However, it will react with moisture (water) in any form (rain, snow, ice, dew, humidity, etc.) to produce acetylene gas. Acetylene is a flammable gas, with a low ignition point and wide flammability limits. The NFPA 704M rating for calcium carbide is 3-3-0-  $\infty$ . For additional information on acetylene, see the Acetylene Safety Data Sheet.

**EXTINGUISHER MEDIA:** Use ABC dry chemical to extinguish fire resulting from the contact of moisture with calcium carbide. Dry sand or dry lime may be used, but they must be absolutely dry! Do not use water or foam as this will cause additional acetylene generation.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:** An acetylene fire resulting from wet carbide should not be extinguished while there is water present. The continued generation of unburned acetylene can result in segregated pockets of gas, which can re-ignite if re-introduced to air. Upon extinguishing any fire, a crust of calcium hydroxide may form over the calcium carbide. Disturbing this crust may result in the fire re-igniting.

**PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:** The reaction of calcium carbide with moisture is exothermic and may generate sufficient heat to ignite the acetylene gas formed. Contact with acid or acid fumes can evolve heat and flammable vapors. Firefighters should wear self-contained breathing apparatus when fighting fires.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### EMERGENCY PROCEDURES:

- Evacuate all personnel from affected areas.
- Use appropriate personal protective equipment as recommended in Section 8.
- Contain the release by preventing additional spillage as well as the spread of the spill.
- Prevent contact with water using sand bags / metal cover if necessary.

### METHODS FOR CLEAN-UP:

- **DRY SPILLS:** Sweep up the material immediately. Transfer to a dry, open top metal container in a covered, ventilated area, and consume in the process as soon as possible.
- **WET SPILLS:** Spills on damp ground, or where the material is contaminated, should be cordoned off to prevent unauthorized access. Contact with water should be minimized. The material should not

be disturbed until the residual lime is free of calcium carbide.

**NOTE:** Spills to the environment of ten pounds or greater require notification to the National Response Center (1-800-424-8802) as well as appropriate state and local authorities.

## SECTION 7 - HANDLING AND STORAGE

**HANDLING:** Avoid abusive handling of containers which might cause denting or puncturing. Use spark resistant tools to open containers. See separate literature for unloading instructions. Railcars, containers or other packages, fully loaded or which contain residual calcium carbide, should not be exposed to smoking materials, sparks, welding or any open flame or direct applied heating. In the event of puncture, or leaking containers, contact Carbide Industries for further information.

**STORAGE:** No smoking, fires or open lights should be permitted in storage area. Calcium carbide may be stored outdoors in unopened metal containers. Covered storage areas are recommended to prevent water entry. Indoor container storage must be well ventilated to avoid potentially flammable concentrations of acetylene and should not have sprinkler type fire suppression systems or open floor drains. Containers should be placed on raised platforms where there is a possibility of pooled water. Further information on storage can be found in National Fire Protection Association publications NFPA 51 and NFPA 51a.

## SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE GUIDELINES:

COMPONENT	PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
Calcium Carbide	15 mg/m <sup>3</sup> (total) / 5 mg/m <sup>3</sup> (respirable) OSHA <sup>(1)</sup>	10 mg/m <sup>3</sup> TWA ACGIH
Calcium Hydroxide	15 mg/m <sup>3</sup> (total) / 5 mg/m <sup>3</sup> (respirable) OSHA	5 mg/m <sup>3</sup> TWA ACGIH

<sup>(1)</sup>Particulate Not Otherwise Regulated

**ENGINEERING CONTROLS:** Ventilation may be used where required to reduce dusting, or to prevent an accumulation of acetylene.

- LOCAL EXHAUST                      Yes
- MECHANICAL (General)            Yes
- SPECIAL                                Explosion-proof

### PERSONAL PROTECTIVE EQUIPMENT (PPE):

- Eye/face protection – safety glasses or goggles
- Cotton work gloves
- Long sleeve shirts, pants, cotton underwear
- Protective cream on exposed skin

**RESPIRATORY PROTECTION:** NIOSH/MSHA respirator for nuisance dusts and mists  
(NIOSH-N95 approved)

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Desulfurization calcium carbide is a fine, gray powder. Traces of moisture liberate garlic-like odor. It decomposes to calcium hydroxide dust in open air.

**MELTING POINT:** 3,600 (F)

**BULK DENSITY:** 65-85 lbs. /ft<sup>3</sup>

**SOLUBILITY IN WATER:** REACTS VIGOROUSLY!  
Exothermic reaction, forms acetylene gas and calcium hydroxide

**ACETYLENE FLAMMABILITY LIMITS (IN AIR):** Lower limit 2.5%      Upper limit 82%

**ACETYLENE AUTOIGNITION TEMPERATURE:** 581 (F)

## SECTION 10 – STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable (when dry)

**REACTIVITY:** Reacts readily and vigorously with water and forms acetylene, a flammable gas. **KEEP DRY!**

**POSSIBILITY OF HAZARDOUS REACTIONS:** None when kept dry. Reacts vigorously with water to form flammable acetylene gas. For further information on potential reactions when wet, please consult the acetylene Safety Data Sheet.

**CONDITIONS TO AVOID:** Contact with any form of water.

**INCOMPATIBLE MATERIALS:** Any form of water, including steam, rain, ice, snow, dew or humidity. For reactions involving acetylene and carbide lime, please consult those Safety Data Sheets.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Acetylene gas.

**SECTION 11 – TOXICOLOGICAL INFORMATION**

Calcium hydroxide forms when calcium carbide reacts with moisture on the skin and mucous membranes. Calcium hydroxide is a mild alkali, which can cause irritation to the skin, eyes and mucous membranes. Combined with water or acids, calcium carbide forms acetylene gas which has anesthetic properties. The gas can also contain traces of phosphine, ammonia, hydrogen sulfide and arsine, which are toxic. Symptoms of acetylene poisoning are dizziness, and in larger concentrations, unconsciousness.

**TOXICITY DATA:** There are no toxicological data available for calcium carbide.

**CARCINOGENICITY:** Calcium carbide is not listed as cancer causing in either the National Toxicology Program, I.A.R.C Monographs or by OSHA.

**SECTION 12 – ECOLOGICAL INFORMATION**

No ecotoxicity studies on calcium carbide have been performed. The release of calcium carbide into the environment will result in the production of calcium hydroxide. While not hazardous, calcium hydroxide is alkaline and will raise pH levels. All efforts should be made to limit the introduction of calcium carbide or its derivatives into the environment.

**SECTION 13 – DISPOSAL CONSIDERATIONS**

Calcium carbide should be consumed in industrial processes if possible. For unsuitable or contaminated calcium carbide, disposal should be conducted in accordance with federal, state and local regulations.

**SECTION 14 – TRANSPORT INFORMATION****BASIC SHIPPING DESCRIPTION:**

- **UN NUMBER:** 1402
- **PROPER SHIPPING NAME:** Calcium Carbide
- **HAZARD CLASS:** 4.3 (Dangerous When Wet)
- **PACKING GROUP:** I

**ADDITIONAL INFORMATION:**

- **DOT LABEL(S) / PLACARD(S):** Dangerous When Wet
- **MARINE POLLUTANT:** Calcium carbide is not designated a marine pollutant
- **REPORTABLE QUANTITY ( RQ):** 10 lbs / 4.54 kgs
- **PACKAGING:** Bulk Railcars, OTR tankers, portable tanks & metal IBC's, metal drums and cans

## SECTION 15 – REGULATORY INFORMATION

### APPLICABLE REGULATIONS:

- D.O.T. 49 CFR 172.101 Transportation
- O.S.H.A. 1910.253 Oxygen-fuel Gas Welding & Cutting
- O.S.H.A. 1910.1200 Hazard Communication
- U.S.E.P.A. SARA 304 (40 CFR Table 302.4) Emergency Planning
- U.S.E.P.A. SARA 311 Reportable Quantity Chemical Inventory Reporting
- U.S.E.P.A. SARA 312 Tier II Reporting
- Calcium carbide is listed on the TSCA Inventory

## SECTION 16 - OTHER INFORMATION

**CALCIUM CARBIDE FEDERAL SPECIFICATION:** O-C-101a 21-July-1949

**SDS REVISION:** 3.1

**SDS AUTHORIZATION DATE:** May 15th, 2015