



# Material Safe Handling Data Sheet



EFFECTIVE DATE: OCTOBER 1987 REPLACES: JANUARY 1987

Emergency Telephone Numbers:  
Chemtrec: 800-424-9300  
Elkem-American: 716-286-7548

## SECTION 1 PRODUCT

PRODUCT FAMILY OR NAME:

# Calcium Carbide

FORMULA:

CaC<sub>2</sub> + CaO

SYNONYMS:

Carbide, Acetylenogen, Calcium Dicarbide  
Industry Terms: Foundry Carbide, Desulfurization Carbide

## SECTION 2 PHYSICAL DATA

APPEARANCE  
AND ODOR:

Grey to bluish black. Odor  
on exposure to air  
resembles garlic.

MELTING RANGE

(Approx.): 1700 to 2300°C.

SOLUBILITY:

Decomposes in water.

OTHER:

Oiled product contains 1%  
or less light oil for purposes  
of dust control.

SPECIFIC GRAVITY

(Approx.): 2.2

REACTIVITY IN WATER:

CaC<sub>2</sub> reacts with water to  
form acetylene (see  
Section 6).

## SECTION 3 TLV DATA ON PRINCIPAL ALLOY INGREDIENTS

SIGNIFICANT  
INGREDIENTS:

CaC<sub>2</sub> (CAS No. 7520-7) . . . . . 65 to 85%  
CaO (CAS No. 1305-78-8) . . . . . 10 to 30%  
(depending on grade)

TLV (mg/m<sup>3</sup>): No TLV has been established for calcium carbide. TLV's  
may be applicable to constituent elements.

None established (OSHA, ACGIH).  
5 mg/m<sup>3</sup> as CaO (OSHA); 2 mg/m<sup>3</sup> as CaO (ACGIH).

## SECTION 4 FIRE AND EXPLOSION HAZARD DATA

**COMBUSTIBILITY:** None, as long as sources of water are excluded. Note: When exposed to air or water, acetylene is formed. Acetylene is lighter than air with a wide explosive range (2.5% to 82% by volume in air) and with a comparatively low ignition temperature.

**EXTINGUISHING MEDIA:** An acetylene fire from wet calcium carbide should normally not be extinguished. Acetylene may continue to be generated and become confined. Once confined the acetylene will explode if ignited. Do not use any water on acetylene fire generated by calcium carbide. Contain fire and allow to burn itself out. In an acetylene fire which must be extinguished due to life-threatening hazards, the fire should be extinguished by using dry powder or by smothering with dry sand. Steps must be taken to overcome the accumulation of acetylene gas.

## SECTION 5 HEALTH-HAZARD DATA

FIRST AID PROCEDURES:

**Inhalation:** Remove from dusty area to fresh air.  
**Skin Contact:** Wash with soap and water. Treat irritation as you would a burn.  
**Eye Contact:** Flush with water to ensure that no material remains in the eye.

EFFECTS OF OVEREXPOSURE:

**Acute:** Dry powder reacts with body moisture to form alkali which irritates the skin, eyes, and respiratory passages.  
**Chronic:** Overexposure symptoms are similar and larger in scale. Dry powder and lump material have a low order of toxicity.



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Elkem-American Carbide Company is in full compliance with the Toxic Substances Control Act of 1976.

## SECTION 6 REACTIVITY DATA

### STABILITY:

Stable in all sizes.

### CONDITIONS TO AVOID:

Moisture either in the air, in other moist materials, or in water solutions. Unventilated storage areas. Avoid generation of airborne dusts.

### MATERIALS TO AVOID:

All forms of moisture. Long-term exposure to copper and copper alloys, silver, and mercury.

### HAZARDOUS REACTION/DECOMPOSITION PRODUCTS:

Acetylene is a highly explosive and flammable gas. Hydrated lime, acetylene and heat are generated during the reaction with water. Grounding of  $\text{CaC}_2$  containers to prevent static electricity discharge is recommended. Copper ground straps or cables should not be used.

## SECTION 7 SPILL, LEAK OR DISPOSAL INFORMATION

### STEPS TO BE TAKEN IN CASE OF SPILLS:

$\text{CaC}_2$  fines—If material remains dry transfer from leaking containers to a clean, dry, container. If  $\text{CaC}_2$  is dirty or damp, take it outdoors, scatter it on the ground in an isolated area, and flood with water.

$\text{CaC}_2$  lump—Make sure the material is dry, then repack in a clean dry container.

Avoid the use of compressed air for clean up, as this practice generates dust.

### WASTE DISPOSAL OR REPACK INFORMATION:

Calcium-carbide fines—Handle as you would a spill or leak.  $\text{CaC}_2$  is an EPA Hazardous Waste. Dispose of according to applicable federal, state or local rules. Do not repackage any size of wet or damp calcium carbide.

**REPORTING A SPILL:** The U.S. Department of Transportation and the U.S. Environmental Protection Agency have established a 10-lb. RQ for calcium carbide. If a release to the environment involves 10 pounds or more calcium carbide, call the National Response Center toll-free at 1-800-424-8802.

## SECTION 8 EMPLOYEE PROTECTION INFORMATION

### RESPIRATORY PROTECTION:

In dusty areas, use NIOSH-approved Schedule 21C respirator.

### OTHER CLOTHING & EQUIPMENT:

Gloves should be used when handling lump material. Avoid contamination of clothing with  $\text{CaC}_2$ . Button work clothes at wrist and neck. The use of a scarf around the neck in hot weather helps avoid chafing from the collar. Barrier creams may also be useful in preventing skin irritation.

### EYE PROTECTION:

Subject to safety rules. Recommend the use of safety goggles.

### CARCINOGENICITY:

Calcium carbide and calcium oxide are not listed by NTP, IARC, or OSHA as carcinogens.

### VENTILATION:

Local for dusty operations.

## SECTION 9 ADDITIONAL INFORMATION

**HANDLING/STORAGE:** Calcium carbide can be stored outdoors, under cover, in full, unopened, well sealed metal containers. Adequate ventilation should be provided to storage buildings and bins where exposed material is stored. This prevents the accumulation of acetylene. Frequent periodic examination of drums should be made to check for excessive rusting. Elkem-American Carbide has a brochure available outlining the handling of calcium carbide. Please obtain the brochure and read carefully before handling, storing and shipping.

**LABELING:** Flammable Solid and Dangerous When Wet. The U.S. Department of Transportation and the U.S. Environmental Protection Agency RQ is 10 lbs. as calcium carbide.

**DOT Hazard Classification:** Flammable Solid — UN 1402.

**TOXIC SUBSTANCES CONTROL ACT—Section 8(e):** Report to Elkem-American Carbide Company any adverse environmental or health effects attributed to this product.



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