

## CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

**Calcium carbide****CAS No.: 75-20-7**

Synonyms: Calcium acetylide

Physical Properties		Exposure Limits	
Dark gray flammable solid with a characteristic odor.		OSHA PEL:	NE
Vapor pressure at 20 °C:	negligible	ACGIH TLV:	NE
Melting point:	2300 °C		

**Hazardous Characteristics**

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin	Sensitizer?	Self-reactive?	Incompatible with:
2	4	2	0	No	No	Water, oxidizing agents, magnesium, sulfur, selenium, silver nitrate.*

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

**\*Reactivity Hazards**

CaC<sub>2</sub> reacts exothermically with water forming calcium hydroxide and acetylene, an extremely flammable gas. The heat of the reaction can be sufficient to raise the temperature above the ignition point for acetylene (305 °C) whereupon the mixture of acetylene with air is likely to explode. Nitrogen is adsorbed by CaC<sub>2</sub>; closed containers of CaC<sub>2</sub> may contain an excess of oxygen in the entrapped air as well as some acetylene; in such cases it is hazardous to open the container. Reactions with magnesium, sulfur, and selenium are vigorous and exothermic. With silver nitrate, CaC<sub>2</sub> forms silver acetylide, a shock-sensitive explosive. See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities.

Cited as known to be or reasonably anticipated to be carcinogenic in NTP-9? No

Identified as a reproductive toxin in Frazier and Hage, *Reproductive Hazards of the Workplace?* No

**Typical symptoms of acute exposures:**

If the dust is inhaled, sore throat, coughing, shortness of breath, lung edema. In the eyes, inflammation, pain. On the skin, inflammation, pain, skin burns.

**Principal target organ(s) or system(s):**

Eyes, skin, respiratory system.

**Storage Requirements**

Storage of calcium carbide is not recommended.

**Additional Remarks**

Symptoms of lung edema are not manifest immediately in victims who have inhaled calcium carbide dust; some hours may elapse first; physical effort can exaggerate these symptoms. Rest is essential for persons exposed to an excess of the dust.

**Notes****ReadMe**

This Chemical Laboratory Information Profile is *not* a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed*. For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

**Reproductive Toxins**

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at <http://www.sis.nlm.nih.gov> and click on "Toxicology search". *Note that some of the data in DART/ETIC have not been peer-reviewed.* See also Linda M. Frazier and Marvin L. Hage, *Reproductive Hazards of the Workplace*, Wiley, 1998; and T. H. Shepard, *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press, 1998.

**Abbreviations**

ACGIH TLV—American Conference of Governmental Industrial Hygienists—Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m<sup>3</sup>—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-9—National Toxicology Program, Ninth Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration—Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

Prepared by: Jay A. Young

Date of preparation: December 2, 2002