

CGA G-1.7—2012

**STANDARD FOR STORAGE AND
HANDLING OF CALCIUM
CARBIDE IN CONTAINERS**

FIFTH EDITION



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Work Item 10-019
Acetylene Committee

NOTE—Technical changes from the previous edition are underlined.

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1 Introduction

This publication is one of a series compiled by the Compressed Gas Association, Inc. to provide information on the production, transportation, handling, and storage of compressed gases, cryogenic liquids, and related products.

2 Scope and purpose

2.1 Scope

This standard covers the storage and handling of calcium carbide in containers from the calcium carbide manufacture to the point of use.

2.2 Purpose

The purpose of this standard is to provide information on the safe storage and handling of calcium carbide and to provide background for training employees in the handling of calcium carbide.

3 General Information

3.1 Nomenclature

Chemical names: Calcium carbide
Calcium dicarbide

Common names: Calcium carbide
Carbide

Chemical formulas: CaC_2 = Calcium carbide
 CaO = Calcium oxide, lime
 Ca(OH)_2 = Calcium hydroxide, slaked lime, lime hydrate, carbide lime
 C_2H_2 = Acetylene

3.2 Physical properties

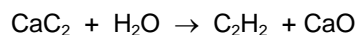
Calcium carbide is a grey, brown, or black granular solid that reacts with water to form acetylene and carbide lime. When crushed, calcium carbide is a rock-like solid with sharp, angular surfaces representing irregular fracture planes. The older the calcium carbide, the smoother these surfaces become due to reaction with moisture in the air. Calcium carbide has a unique odor that has been described as garlic-like, due primarily to trace impurities given off when the calcium carbide reacts with atmospheric moisture. These impurities include phosphine, ammonia, hydrogen sulfide, and organic sulfides [1].¹

Calcium carbide has a specific gravity of 2.2. The bulk density of calcium carbide is approximately 67 lb/ft³ (1100 kg/m³); however it varies with particle size.

Calcium carbide itself will not burn or explode. It is made in an electric furnace and is tapped from the furnace white hot at 3600 °F (1980 °C) into molds open to the air.

3.3 Chemical properties

Calcium carbide reacts readily with water, water-moistened materials, or moisture in any form (fog, mist, spray or vapor) to form acetylene and calcium oxide.



¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.