



CALCIUM CARBIDE SPECIFICATION, STORAGE AND HANDLING

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1 Introduction

This publication is the updated version of the previous document 196 Calcium Carbide Storage and Handling, integrating the previous document 205, Calcium Carbide Specifications.

This publication has collected information from calcium carbide manufacturers, withdrawn national standards and gas companies experience to establish an updated and current standard for calcium carbide. It also gives guidance on the relevant properties of calcium carbide to be used for the production of acetylene.

This publication reviews the essential safety procedures associated with calcium carbide and general recommendations for calcium carbides storage areas.

2 Scope and purpose

2.1 Scope

This publication covers specification and requirements for the safe storage and handling of calcium carbide at acetylene plants.

2.2 Purpose

To provide guidance to EIGA Member Companies when they specify calcium carbide for acetylene production and to provide guidance on the storage and handling of calcium carbide at acetylene plants such that safe conditions are maintained.

3 Definitions

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

3.1.3 May and need not

Indicate that the procedure is optional.

3.1.4 Will

Is used only to indicate the future, not a degree of requirement.

3.1.5 Can

Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 Calcium carbide briquette

Compressed block of calcium carbide dust.

3.2.2 Calcium carbide containers

Vessels normally made of sheet steel with a rectangular or cylindrical shape. They are water-tight and are handled either by forklift or crane. The containers can be classified into:

- intermediate bulk container (IBC) with a capacity up to 3 m³ or 2,5 t
- other containers up to 22m³ or 20 t

Containers that are used only for the transport of calcium carbide. The calcium carbide is transferred to a charging skip or charging container. The 20 t containers have ventilation systems with drying absorbents and connections for purge and analysis or are under a light pressurization with nitrogen (e.g. 50 mbar)

3.2.3 Drums

Packages manufactured from sheet steel with a capacity up to 400 kg but usually not exceeding 110 kg. They are water-tight and, depending on the design, drums can be used for one or multiple trips. Larger drums are sometimes referred to as barrels.

3.2.4 Dust

Calcium carbide that passes through a test sieve having a mesh width of 1 mm.

3.2.5 Grain size

Defines the dimension of the calcium carbide pieces. The specification for the grain size of calcium carbide will depend upon the requirements of the generator system.

- Oversize of a given graded size calcium carbide

Calcium carbide retained on coarser sieves.

- Undersize of a given graded size calcium carbide

Calcium carbide that passes through the finer sieves. Any needle like pieces remaining after the sieving operation are to be counted as part of the next finer size provided that they can be pushed through the holes by hand.

3.2.6 Hot spots

Locally overheated (glowing) areas of calcium carbide. These can be identified by hot surfaces on the calcium carbide package or generator system.

3.2.7 Turn bins and flow bins

3.2.7.1 Turn bin

Bulk container (approximately 1.5 t carbide content) that has only one opening at the base that is used for filling and emptying. The bin is turned at the carbide manufacturers to enable it to be filled.

3.2.7.2 Flow bin

Bulk container (approximately 1.5 t carbide content) which is filled from the top and emptied from the bottom.