

CGA P-8.3—2012
PERLITE MANAGEMENT
THIRD EDITION



**COMPRESSED GAS
ASSOCIATION, INC.**

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Atmospheric Gases and Equipment 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. (CGA), in response to inquiries for information relating to perlite. Perlite is used as an insulation medium in cryogenic coldboxes, cryogenic liquid tanks, field-erected flat bottom tanks, and pipe ducts, where perlite is filled into the annular spaces between the inner and the outer shells.

2 Scope

Perlite is nontoxic and nonflammable; however, the nature of the material and the large quantities involved require the use of special operations, handling, and safety procedures. This publication provides guidance for reducing the risks of unplanned perlite releases and incidents that could have potential for personal injury, property damage, downtime, and environmental impact.

It covers the use of perlite in cryogenic coldboxes and cryogenic bulk storage vessels and focuses on safety, perlite handling procedures, and emergency perlite management. This publication is directed to industrial gas plant manufacturers, owners, and operators of facilities that utilize and maintain perlite as an insulation medium for cryogenic equipment. Insulating materials, such as rock wool or vermiculite and other synthetic silicates, are not covered in this publication. This publication does not cover hazards related to toxic and flammable gases.

Information regarding design considerations, operation, and maintenance of cryogenic enclosures is contained in CGA P-8.8, *Safe Design and Operation of Cryogenic Enclosures* [1]¹.

NOTE—This publication does not attempt to recommend or establish specific design or usage criteria, but to provide best practices. The end user shall determine the specific requirements.

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Verbal Forms

- Shall indicates that the procedure is mandatory. It is used wherever criterion for conformance to specific recommendation allows no deviation.
- Should indicates that a procedure is recommended.
- May and need not indicate permission and that the procedure is optional.
- Will is used only to indicate the future, not a degree of requirement.
- Can indicates a possibility or ability.

3.2 Coldbox

Cylindrical or rectangular enclosure, typically metal, surrounding the distillation columns and other cryogenic equipment.

NOTE—The space between the columns and the inner coldbox shell is filled with insulation material, typically perlite.

3.3 Cryogenic

Temperatures below $-130\text{ }^{\circ}\text{F}$ ($-90\text{ }^{\circ}\text{C}$).

3.4 Perlite

Inert volcanic glass that forms a lightweight powder aggregate when expanded by heat.

NOTE—Perlite is an odorless, nonflammable, nontoxic white to off white silicate powder. Perlite is a highly effective insulating material used to reduce refrigeration losses or heat leak into the coldbox, which would otherwise reduce production, increase power consumption, or both.

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