CGA P-30—2013

PORTABLE CRYOGENIC LIQUID CONTAINERS—USE, CARE, AND DISPOSAL

THIRD EDITION

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NOTE—Technical changes from the previous edition are underlined.

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1 Introduction

Portable cryogenic liquid containers provide a reliable, convenient, and economical means for transportation, delivery, and short-term storage of liquefied gas products. They are self-contained gas supply devices that generally consist of an inner container housed by an outer container. The area between the inner and outer containers is evacuated and filled with insulation to minimize the transfer of heat from the outer container to the liquid product stored in the inner container.

Safe handling of cryogenic liquids is primarily a matter of knowing and understanding their specific properties and their compatibility with other materials.

NOTE—Portable cryogenic liquid containers are referred to throughout this publication as liquid containers.

2 Scope

This publication provides general information regarding the safe use and proper handling of liquid containers commonly used by industry and institutions. It is intended for users, shippers, carriers, distributors, equipment designers, installers, safety administrators, and all others desiring an introductory knowledge of liquid containers. It is intended to complement national, state, provincial/territorial, municipal, and insurance company safety requirements. The information in this publication applies only to pressurized liquid containers.

3 Definitions

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

3.1 Capacity

Maximum weight of contents or volume of gaseous equivalent expressed as liquid volume.

NOTE—In gas service the number of cubic feet of gas available is significant.

3.2 Cryogenic liquid

Refrigerated liquefied gas having a boiling point below –130 °F at 14.7 psia (–90 °C at 101.3 kPa, abs).[1,2] See the CGA's *Handbook of Compressed Gases* [1].

3.3 Economizer valve

Pressure regulator that is part of the economizer system that delivers gas from the top of the container to the gas use line to minimize gas loss. Also known as backpressure valve.

NOTE—The economizer valve opens when the pressure exerted on the control side of the valve exceeds the valve's set point. The economizer valve closes when the pressure is less than the set point.

3.4 Equilibrium

Condition where no change occurs in the state of a system as long as the surroundings are unchanged.

NOTE—In relation to liquefied gases, equilibrium describes the theoretical state where the temperature/pressure relationship is such that the liquid and gas phases are static.

3.5 Pressure building valve

Type of valve used on liquid containers to raise the pressure in the headspace of the container to operational levels.

NOTE—This valve is normally open at all pressures below its set point and closed at the set point and above. Some pressure building valves incorporate a dual feature combining the pressure build and economizer valve functions into a single valve.

[1] kPa shall indicate gauge pressure unless otherwise noted as (kPa, abs) for absolute pressure or (kPa, differential) for differential pressure. All kPa values are rounded off per CGA P-11, *Metric Practice Guide for the Compressed Gas Industry* [2].

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