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GUIDELINE FOR PORTABLE CRYOGENIC LIQUID CONTAINERS—USE, CARE, AND DISPOSAL

FOURTH EDITION

Compressed Gas Association
The Standard For Safety Since 1913

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NOTE—Technical changes from the previous edition are underlined.

FOURTH EDITION: 2020
THIRD EDITION: 2013
SECOND EDITION: 2007
FIRST EDITION: 2003

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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. In addition, liquid containers may also contain refrigerated liquids such as carbon dioxide and nitrous oxide.

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 to pressurized insulated liquid containers including U.S. Department of Transportation (DOT) DOT-4L portable liquid storage pressure vessels with a maximum water capacity of up to 1000 lb at service pressure from 40 psi up to 500 psi and Transport Canada (TC) TC-4LM portable liquid storage pressure vessels up to 550L at service pressure from 0.3 MPa up to 3.5 MPa. [1,2]

3 Definitions

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

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
Indicates 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

3.3 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.

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

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