



CGA P-22—2021 GUIDELINE FOR THE RESPONSIBLE MANAGEMENT AND DISPOSITION OF COMPRESSED GASES AND THEIR CYLINDERS

FOURTH EDITION

This document licensed for the sole use of the purchaser. It may not be shared with any other person or used after the expiration date without the express written permission of the CGA. Any unauthorized use, reproduction, distribution, or modification of this printed page will result in a \$5,000 liquidated damages fee plus loss of access to CGA publications for one year for your company.
Full document details: [CGA P-22-2021](#)

PLEASE NOTE:

The information contained in this document was obtained from sources believed to be reliable and is based on technical information and experience currently available from members of the Compressed Gas Association, Inc. and others. However, the Association or its members, jointly or severally, make no guarantee of the results and assume no liability or responsibility in connection with the information or suggestions herein contained. Moreover, it should not be assumed that every acceptable commodity grade, test or safety procedure or method, precaution, equipment or device is contained within, or that abnormal or unusual circumstances may not warrant or suggest further requirements or additional procedure.

This document is subject to periodic review, and users are cautioned to obtain the latest edition. The Association invites comments and suggestions for consideration. In connection with such review, any such comments or suggestions will be fully reviewed by the Association after giving the party, upon request, a reasonable opportunity to be heard. Proposed changes may be submitted via the Internet at our website, www.cganet.com.

This document should not be confused with federal, state, provincial, or municipal specifications or regulations; insurance requirements; or national safety codes. While the Association recommends reference to or use of this document by government agencies and others, this document is purely voluntary and not binding unless adopted by reference in regulations.

A listing of all publications, audiovisual programs, safety and technical bulletins, and safety posters is available via the Internet at our website at www.cganet.com. For more information contact CGA at Phone: 703-788-2700, ext. 799. E-mail: customerservice@cganet.com.

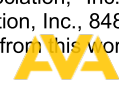
Work Item 19-053
Environmental Committee

NOTE—Technical changes from the previous edition are underlined.

FOURTH EDITION: 2021
THIRD EDITION: 2014
SECOND EDITION: 2007
REAFFIRMED: 2001

© 2021 BY THE COMPRESSED GAS ASSOCIATION, INC. ALL RIGHTS RESERVED.

All materials contained in this work are protected by United States and international copyright laws. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, recording, or any information storage and retrieval system without permission in writing from The Compressed Gas Association, Inc. All requests for permission to reproduce material from this work should be directed to The Compressed Gas Association, Inc., 8484 Vestpark Drive, Suite 220, McLean, VA 22102. You may not alter or remove any trademark, copyright or other notice from this work.

 **Documents**
Document Sharing Hub

Contents	Page
1 Introduction.....	1
2 Scope and purpose	1
3 Definitions.....	1
4 Rights and responsibilities.....	4
4.1 Customer	4
4.2 Supplier	4
4.3 Distributor rights and responsibilities.....	5
5 Regulatory overview.....	5
5.1 U.S. federal regulations.....	5
5.2 State requirements	6
5.3 Local requirements	6
5.4 Canadian regulations	6
6 Safety and environmental risks	6
7 Cylinder management practices.....	7
7.1 Preventing problem cylinders	7
7.2 Evaluation of a cylinder and its contents	8
7.3 Handling of problem cylinders	9
7.4 Transportation	10
7.5 Disposition.....	10
7.6 Disposition of unserviceable acetylene cylinders	12
7.7 Selection criteria for environmental contractors; transporters; and treatment, storage, and disposal facilities	14
7.8 Emergency response plan development	15
8 References	15

1 Introduction

This publication addresses the disposition of compressed gas cylinders and their contents.

2 Scope and purpose

The information in this publication is intended for use by customers, shippers, carriers, distributors, safety and environmental administrators, and others desiring an introductory knowledge of the subject. Anyone requiring more detailed or specialized information should consult their compressed gas supplier.

The purpose of this publication is to increase awareness of important safety and environmental issues regarding the proper handling, transportation, and disposition of cylinders and cylinder contents for the following conditions:

- cylinders containing unknown or potentially contaminated contents;
- cylinders of questionable integrity; and
- cylinders destined for decommissioning.

3 Definitions

For the purposes 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

3.2.1 Abandoned cylinder

Cylinder for which no owner or the cylinder's contents can be identified.

NOTE—An abandoned cylinder should be considered to have unknown contents regardless of identifying marks, labeling, and valve configuration.

3.2.2 Analysis

Scientific procedure using recognized analytical protocols to produce sufficient data that identifies the compound or compounds that make up the sample.

3.2.3 Appurtenances

Devices such as pressure relief devices, valves, pressure gauges, regulators, etc., that can be attached to a cylinder.

3.2.4 Contamination

Introduction of a foreign (unwanted) material into a cylinder.

NOTE—Contamination can occur during filling or through external connection with other cylinders, process equipment (back-flow), or the atmosphere.

3.2.5 Customer

Business or individual that purchases industrial, medical, or specialty gases in cylinders.

3.2.6 Cylinder

Portable pressure vessel designed for pressures higher than 40 psia (276 kPa, abs) having a water capacity of less than 454 kg (1000 lb), having a circular cross section, and manufactured in accordance with recognized national standards.^{1, 2}

NOTE—For purposes of this publication, use of the term “cylinder” shall be taken to include not only the pressure vessel, but its appurtenances as well.

3.2.7 Cylinder containment vessel

Sealed container suitable for holding a problem cylinder for the purpose of safely containing and transporting that cylinder and its contents. Vessels for this purpose shall be rated for a sufficiently high internal pressure appropriate to the characteristics of the gaseous contents to be transported and shall be in accordance with all applicable U.S. Department of Transportation (DOT) regulations and American Society of Mechanical Engineers (ASME) standards.

3.2.8 Decommission

Removal of a compressed gas cylinder from service by rendering it permanently unusable.

3.2.9 Disposable cylinder (nonrefillable)

Term sometimes used to describe nonrefillable cylinders (see 3.2.16).

3.2.10 Disposal

Deposit in a landfill or introduction of gas into the environment, such as venting of cylinder contents to atmosphere, in accordance with federal, state, and local regulations.

3.2.11 Disposition

Recycling, treating, or disposing of a compressed gas cylinder or its contents.

3.2.12 Distributor

Business engaged in the sale or resale of compressed and liquefied gases.

3.2.13 Environmental contractor

Firm or individual qualified to provide services associated with one or more of the following services: sampling, analysis, handling, transportation, treatment, storage, recycling, and disposal of hazardous materials.

NOTE—This definition also includes contractors that investigate, prevent, control, and remediate hazardous material releases.

3.2.14 CERCLA Hazardous substance

Any substance designated pursuant to 40 CFR Part 302 [2].

3.2.15 Hazardous materials

Defined and regulated in the United States by OSHA, EPA, DOT, and Nuclear Regulatory Commission (NRC), which each has its own definition. In Canada, hazardous materials are regulated under 'Hazardous Products Regulations', SOR/2015-17

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, *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.



3.2.16 Known cylinder

Cylinder properly labeled together with available knowledge regarding purchase, use, handling, storage, and maintenance or a cylinder with content that has been verified by analysis.

3.2.17 Manufacturer

See 3.2.22.

3.2.18 Nonrefillable (disposable)

Nonreusable cylinders manufactured to DOT Specification 39, 40, and 41, Canadian Transport Commission (CTC) Specification 39, and Transport Canada (TC) Specification 39M. These cylinders shall not be refilled or reused for any purpose.

3.2.19 Problem cylinder

Cylinder that is not usable in the normal course of business including but not limited to:

- abandoned cylinders;
- cylinders with unknown contents;
- cylinders that are not in a condition to be safely transported, e.g., leaking cylinders or cylinders suspected of leaking;
- cylinders with inoperable valves;
- cylinders that have been exposed to a fire or similar excessive heat; or
- cylinders with unstable contents such as shock sensitive or overpressurized.

3.2.20 Recovery

Collecting of materials before recycling or other use.

3.2.21 Recycle

Reuse of a recovered material as a product or in an industrial process to make a product.

NOTE—This does not include the reuse of the material for energy recovery.

3.2.22 Supplier

Business that produces, fills, or distributes compressed gases and compressed gas cylinders.

3.2.23 Treatment

Process, including neutralization, designed to change the physical, chemical, or biological character or composition of a material.

NOTE—Energy recovery, volume reduction, absorption, adsorption, and toxicity reduction are considered treatments.

3.2.24 Unknown cylinder

Cylinder that fits one or more of the following criteria:

- It does not have a label or it is suspected that the label has been altered or tampered with;
- Its valve and relief device configuration does not correspond to its label according to industry standards;
- Its contents might have been contaminated such as through improper connection with other cylinders, process equipment, or the atmosphere; or
- It is suspected of being used for something other than its intended service since the last fill.