



**CGA P-63—2013**  
**DISPOSAL OF GASES**

**FIRST EDITION**

## PREFACE

As part of a program of harmonization of industry standards, the Compressed Gas Association (CGA) has adopted the original European Industrial Gases Association (EIGA) Doc. 30, *Disposal of gases*. This standard is intended as an international harmonized publication for the worldwide use and application by all members of the Asia Industrial Gases Association (AIGA), CGA, EIGA, and the Japan Industrial and Medical Gases Association (JIMGA). The CGA edition has the same technical content as the EIGA edition, however, there are editorial changes primarily in formatting, units used and spelling. Also, references to European regulatory requirements have been replaced with the relevant North American requirements.

### 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 web site, [www.cganet.com](http://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](http://www.cganet.com). For more information contact CGA at Phone: 703-788-2700, ext. 799. E-mail: [customerservice@cganet.com](mailto:customerservice@cganet.com).

Work Item 07-174  
Specialty Gases Committee

FIRST EDITION: 2013

© Reproduced with permission from, the European Industrial Gases Association. All rights reserved.

<b>Contents</b>	<b>Page</b>
1 Introduction.....	1
1.1 Scope .....	1
1.2 Purpose .....	1
1.3 Key operations for safe container disposal.....	1
2 Training and safety in the disposal of gases .....	1
2.1 Training.....	1
2.2 Training procedure .....	2
2.3 Training scope .....	2
2.4 Safety—Design of plant and equipment.....	3
2.5 Safety checklist.....	3
3 Selection of a disposal method .....	4
3.1 Introduction.....	4
3.2 Gas characteristics .....	4
3.3 Local conditions, regulatory requirements, and operational constraints.....	5
3.4 Quantity of gas .....	5
3.5 Disposal checklist.....	5
3.6 References .....	5
4 Methods of disposal .....	5
4.1 Introduction.....	5
4.2 Index to methods.....	6
4.3 Methods.....	6
4.4 References .....	22
5 Gas characteristics and recommended disposal methods.....	23
5.1 Introduction.....	23
5.2 Explanatory notes on Appendix A .....	23
5.3 References .....	24
6 Disposal of gas mixtures .....	25
7 Identification of container contents .....	25
7.1 Introduction.....	25
7.2 Identification by product name.....	26
7.3 Identification by color.....	26
7.4 Indication by hazard labels.....	26
7.5 Indication by type of container.....	27
7.6 Indication by type of valve .....	27
7.7 Indication by container markings.....	27
7.8 Confirmation of indications of contents .....	27
7.9 References .....	27
8 Disposal of nonserviceable containers .....	28
8.1 Introduction.....	28
8.2 Notes on ensuring the container is empty .....	28
8.3 Notes on purging containers .....	29
8.4 Notes on devalving .....	29
8.5 Notes on potentially hazardous residues .....	29
8.6 Notes on rendering containers unserviceable .....	30
8.7 References .....	30
9 References .....	30

**Figures**

Figure 1—Method 2A schematic arrangement .....	7
Figure 2—Method 2B schematic arrangement .....	9
Figure 3—Method 2C schematic arrangement .....	11
Figure 4—Method 3A schematic arrangement .....	13
Figure 5—Method 3B schematic arrangement .....	14
Figure 6—Method 3C schematic arrangement .....	16
Figure 7—Method 4A schematic arrangement .....	18
Figure 8—Method 4B schematic arrangement .....	19
Figure 9—Method 4C schematic arrangement .....	20
Figure 10—Method 4D schematic arrangement .....	21
Figure 11—Flowchart for identification of container contents .....	28

**Appendices**

Appendix A—Gas characteristics and recommended disposal methods.....	32
Appendix B—Index to gas names and synonyms.....	70

## 1 Introduction

### 1.1 Scope

This publication recommends disposal methods for more than 130 gaseous chemicals and their mixtures and provides safe practices for the disposal of their containers when unserviceable. This publication reflects the concern of the industrial gases industry to ensure that when the need arises for disposal of gaseous chemicals and mixtures, standards of health, safety, and environmental quality continue to be maintained. Only environmentally acceptable methods are proposed.

### 1.2 Purpose

Dealing with damaged and/or unidentifiable containers (gas cylinders, drum tanks, and similar transportable and pressurized vessels) is often an integral part of the gas disposal operation and for this reason guidance on the subject is included. However, such work is potentially dangerous and shall only be performed by experienced personnel.

The compilers of this publication envisage it will be used as an aid in the training of operators involved in the disposal of gases. The sections have been written with this in mind and in particular summary checklists have been added for use as training modules.

### 1.3 Key operations for safe container disposal

Key operations are:

- a) Identify container contents, see Section 7;
- b) Select disposal method, see Sections 4 and 5;
- c) Safely dispose of container contents, see Sections 5 and 6;
- d) Evacuate and/or purge container, see 8.3;
- e) Devalue container, see 8.4;
- f) Remove any noxious residues from the container, see 8.5; and
- g) Render cylinder unserviceable and scrap, see 8.6.

NOTE—If doubt exists at any stage in the procedure, specialist advice should be obtained.

## 2 Training and safety in the disposal of gases

### 2.1 Training

It is essential that all personnel engaged in the disposal of gases shall be properly trained and equipped and their practical competence established before they engage in disposal work. In specific cases, local certification may be required.

In some instances the emphasis is on using experienced operators and it is important to understand that this publication assumes that the operator's experience has also been reinforced with systematic and recorded training.

It is recommended that all operators undertaking gas disposal work should:

- be properly trained in practice and theory;
- have written instructions/checklists;
- be properly equipped with protective clothing and safety equipment; and
- be provided with correctly designed disposal plant and equipment, and, if expected to deal with emergency situations, be trained to assemble emergency rigs from readily available materials.