CGA G-15—2018

FLUORINE AND FLUORINE MIXTURES WITH INERT GASES

SECOND EDITION
(Corrected 2/13/2020)

CGA
Compressed Gas Association
The Standard For Safety Since 1913

PREFACE

As part of a program of harmonization of industry standards, the Compressed Gas Association (CGA) has issued CGA G-15, *Fluorine and Fluorine Mixtures with Inert Gases*, jointly produced by members of the International Harmonization Council and originally published by the European Industrial Gases Association (EIGA) as EIGA Doc 140, *Fluorine and Fluorine Mixtures with Inert Gases*.

This publication is intended as an international harmonized standard for the worldwide use and application of all members of the Asia Industrial Gases Association (AIGA), Compressed Gas Association (CGA), European Industrial Gases Association (EIGA), and Japan Industrial and Medical Gases Association (JIMGA). Each association's technical content is identical, except for regional regulatory requirements and minor changes in formatting and spelling.

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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.

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Work Item 14-008
Specialty Gases Committee

NOTE—Technical changes from the previous edition are underlined.

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FIRST EDITION: 2010

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1 Introduction

Fluorine is a highly toxic and oxidizing gas that presents health risks such as poisoning by inhalation and safety risks such as combustion.

Fluorine and fluorine mixtures can be safely handled if equipment is properly designed and maintained, handling precautions are taken, and employees are trained. As a minimum, all personnel shall have access to the safety data sheet (SDS) and be trained in the use of the SDS and other reference material.

2 Scope and purpose

This publication is for suppliers, distributors, and users of gaseous fluorine and mixtures of fluorine with inert gases and handling equipment. This publication is intended for fluorine and mixtures where the resulting fluorine concentrations greater than or equal to 0.5% fluorine are considered to present a risk of reaction due to the oxidizing potential.

This publication provides a good understanding of the potential hazards involved in storage, use, and transportation of compressed fluorine and its mixtures with inert gases and approaches to be taken to minimize the risk of incidents.

The manufacture, purification, liquefaction, and analysis of fluorine or its mixtures with inert gases are beyond the scope of this publication, although the general guidance given is also relevant to these processes.

An audit checklist is located in Appendix A of this publication.

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

3.2.1 Auto-ignition temperature
Temperature at which a substance will spontaneously ignite in a specified oxidant at a given pressure.

3.2.2 Bundle (of cylinders)
Assembly of cylinders that are fastened together and interconnected by a manifold and carried as a unit.

3.2.3 Cylinder
Transportable pressure receptacle having a water capacity that does not exceed 150 L and can be filled with gas under pressure.