CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA P-8.7—2016

SAFE LOCATION OF OXYGEN AND INERT GAS VENTS

FIRST EDITION

PREFACE

As part of a program of harmonization of industry standards, the Compressed Gas Association (CGA) has issued CGA P-8.7, *Safe Location of Oxygen and Inert Gas Vents*, jointly produced by members of the International Harmonization Council and originally published by the European Industrial Gases Association (EIGA) as EIGA Doc 154, *Safe Location of Oxygen and Inert Gas Vents*.

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 Items 06-102 and 06-102a
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Contents **Page**

Figures

Appendices

Appendices tables

1 Introduction

This publication defines the criteria for the design of process vents to ensure the safe disposal of oxygen and inert gases.

Industrial gas producers are subject to more and more stringent demands from authorities to demonstrate that the operation of their plants is safe. A number of incidents have been reported where enriched or deficient atmospheres from venting operations have created operational safety issues [1, 2]. As air separation unit (ASU) capacity has increased, the risk of oxygen-enriched and oxygen-deficient atmospheres has become a significant safety concern.

2 Scope and purpose

2.1 Scope

This publication applies to air separation and cryogenic liquefaction plants in which the venting of oxygen, nitrogen, oxygen/nitrogen mixtures, argon, or air occurs.

Disposal of cryogenic liquid is not covered in this publication although the potential for vent releases to have some liquid present is included (see 5.5).

The recommendations contained in this publication for elevations and horizontal separation distances are not applicable to customer station tanks. Safety distances for such tanks are governed by the design criteria for plant layout or national regulations/codes of practice, whichever are more stringent [3, 4].

2.2 Purpose

This publication is designed to give a basis on which to determine the safe location of oxygen or nitrogen and argon gas vents for normal operating, upset, and emergency conditions. This determination can be made by calculation against the criteria specified or by use of the tables provided in the appendices as a guide.

The publication contains calculated safe separation distances for a range of vent sizes and orientations based on commonly encountered but specific design conditions. If these design criteria are not met particularly with regard to vents intended to operate over a large range of flows (for example, product vents having turndown flows), the tables may not be appropriate and detailed calculations should be carried out.

This publication should be used for new designs but can be used on existing plants to determine whether existing vents are safely located or whether modifications/temporary structures will interfere with the original design intent.

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.