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Compressed Gas Association

The Standard For Safety Since 1913

CGA V-7.1–2021

STANDARD METHOD OF DETERMINING CYLINDER VALVE OUTLET CONNECTIONS FOR MEDICAL GASES

THIRD EDITION

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Work Item 16-014
Medical Gases Committee

NOTE—Technical changes from the previous edition are underlined

NOTE—Appendices A, B, and C (Informative) are for information only

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Appendices

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1 Introduction

CGA V-1, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections* includes valve outlet connections for more than 175 different pure gases and chemicals but includes only a few gas mixtures that have a history of commercial or medical importance for which standards were in demand [1].[1]

In response to the increase in the number of industrial gas mixtures, CGA published CGA V-7, *Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures* [2]. CGA V-7 excludes medical gas mixtures.

Medical gases are given special treatment because of their applications involving medical patients. CGA determined that a method of selecting cylinder valve outlet connections for medical gases would help manufacturers of medical gases and medical equipment select appropriate connections for new medical gases and use existing connection assignments better. This method addresses known potential hazards to the user or the patient caused by inappropriate connections. If a medical gas equipment or medical gas manufacturer believes the existing connection assignment does not adequately address safety requirements, that manufacturer shall request a new connection assignment from CGA as detailed in CGA V-1 [1].

Where used in this standard, the term medical gases shall mean compressed gases in cylinders that are labeled as either drugs or medical devices, including gas mixtures. The definition of drugs and medical devices as it relates to these gases shall be that as promulgated by the Food and Drug Administration (FDA) in the United States and by the Health Canada Therapeutic Products Programme in Canada.

2 Scope and Purpose

2.1 Scope

This standard applies to the selection of an appropriate cylinder valve outlet connection for medical gases for pressures up to 3000 psi (20 680 kPa) at 70 °F (21.1 °C).[2] It does not apply to industrial gas mixtures, cylinders manifolded in transport and use, or to mixtures at higher pressures. Both threaded and pin-indexed connection assignments are included with reference to V-1 [1].

This revision replaces the use of limited standards with alternate standards for the purpose of assuring only one connection assignment will be appropriate. This revision brings consistency with ISO 407:2004, *Small medical gas cylinders—Pin-index yoke-type valve connections*, to standardize pin-indexed yoke-type valve connections globally [4].

2.2 Purpose

The purpose of this standard is to establish a procedure for selecting the appropriate cylinder valve outlet connection for medical gases. It does not attempt to identify which medical gases may be safely manufactured nor indicate that the connection is safe or effective for any medical procedure. It is the responsibility of the manufacturer, the medical community and appropriate regulatory bodies to make those decisions.

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.

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

[2] 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* [3].