CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA V-7.1—2011

STANDARD METHOD OF DETERMINING CYLINDER VALVE OUTLET CONNECTIONS FOR MEDICAL GASES

SECOND EDITION

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1 Introduction

The Compressed Gas Association's (CGA) original standard on cylinder valve outlet connections was adopted by the American Standards Association and the Canadian Standards Association in 1949 as the *American National, Canadian and Compressed Gas Association Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections*. This document has been revised several times since then and is now published as CGA V-1, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections* [1].[1] This standard 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.

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].

Medical gases and medical gas mixtures are given special treatment because of their applications involving the care and handling of medical patients. For this reason, and because specific medical connections are covered in CGA V-1, outlet connections for medical gas mixtures were not covered by CGA V-7 [1, 2].

CGA determined that a method of selecting cylinder valve outlet connections for medical gas mixtures would help manufacturers of medical gases and medical equipment select appropriate connections for new mixtures and use existing connection assignments better. This method will avoid potential hazards to the user or the patient.

2 Scope

This standard applies to the selection of a suitable cylinder valve outlet connection for medical gas mixtures for pressures up to 3000 psig (20 680 kPa) at 120 °F (48.9 °C).[2] It does not apply to industrial gas mixtures, cylinders manifolded in transport and use, or to mixtures at higher pressures. Connection assignments for single gases are included for clarity.

3 Definition

Limited standard
Limited standard is defined in CGA V-1 as a connection that is limited to the particular application described in CGA V-1 [1].

4 Purpose

The purpose of this standard is to establish a procedure for selecting the proper cylinder valve outlet connection for mixtures intended for medical use. It does not attempt to identify which combinations of two or more gases may be safely and successfully manufactured, since that is the responsibility of the manufacturer. Inclusion in this standard does not indicate that the mixture is either 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. This standard also does not describe any means or technique for making mixtures.

5 Description of the method

The method described here shall be used in conjunction with the current edition of CGA V-1 [1]. Drawings and specifications for all of the connection numbers referred to in this document are found in CGA V-1.

The method differentiates medical gases based on intended use; ability to support life; and flammable, oxidizing, and toxic component levels. Connection assignments are grouped into six categories based upon these criteria.

[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, *Metric Practice Guide for the Compressed Gas Industry* [3].