CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA P-23—2015

STANDARD FOR CATEGORIZING GAS MIXTURES CONTAINING FLAMMABLE AND NONFLAMMABLE COMPONENTS

FOURTH EDITION

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Work Item 11-020
Specialty Gases Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendix A (Informative) is for information only.

FOURTH EDITION: 2015
THIRD EDITION: 2008
SECOND EDITION: 2003
FIRST EDITION: 1995

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1 Introduction

The flammability of many pure gases has been well established. Label requirements and hazard classes for pure gases reflect the requirements of the government agencies having jurisdiction in the place from which the cylinders are shipped. In the United States and Canada, these are the U.S. Department of Transportation (DOT) and Transport Canada (TC) [1, 2].[1] Additional labels denoting more than the flammability hazard class may be required. There has been no universally accepted standard for categorizing the flammability of gas mixtures for transportation.

2 Scope

This standard describes a basis for categorizing a gas mixture as flammable or nonflammable for transportation marking and labeling. A mixture can contain components that are not gases but the mixture shall be a gas. This standard applies to all users, shippers, transporters, and manufacturers affected by transportation labeling and classification requirements for gas mixtures that contain flammable component(s).

Oxidizing components and the oxidizing potential of mixtures are not covered in this standard. Classification of gas mixtures containing flammable and oxidizing gas is outside the scope of this standard.

3 Definitions

For the purpose of this standard, 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 Binary mixture
Mixture comprised of only two components added intentionally to a cylinder.

3.2.2 Flammable component
Any material required by the relevant government agency to bear a FLAMMABLE GAS or FLAMMABLE label.

3.2.3 Nonflammable component
Any material not required by the relevant government agency to bear a FLAMMABLE GAS or FLAMMABLE label or OXIDIZER label.

NOTE—Ammonia complies with this definition because it has a DOT/TC nonflammable gas label for shipments within North America. Any mixture containing ammonia in other nonflammable components would be classified as nonflammable.

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