CGA
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6TH EDITION

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STANDARD FOR CLASSIFICATION OF TOXIC GAS MIXTURES

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Work Item 21-052
Specialty Gases Committee

NOTE—Technical changes from the previous edition are underlined.

SIXTH EDITION: 2023
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1 Introduction

Toxic designations for pure gases are well known. However, the list of gases included in this standard varies because the toxicity values that are used to determine whether or not a gas meets the definition of “toxic” or “poison”, in U.S. Department of Transportation (DOT) *Hazardous Materials Regulations* and Transport Canada’s (TC) *Transportation of Dangerous Goods (TDG) Regulations* also vary [1, 2]. Subsidiary hazard classes and multiple labels for pure gases reflect DOT and TC requirements. Additional labels denoting subsidiary hazards in addition to the hazard class 2.3 may be required. The data within this publication may be used for acute toxicity categorization with the United Nations (UN) *Globally Harmonized System of Classification and Labelling of Chemicals* (GHS) [3].

Information on toxicity of gases has been obtained from a variety of sources. Specifically, LC_{50} and LC_{LO} data were obtained from the National Institute for Occupational Safety and Health (NIOSH), *Registry of Toxic Effects of Chemical Substances* (RTECS) and Sax's *Dangerous Properties of Industrial Materials*, Sixth Edition, and ISO 10298, *Gas Cylinders - Gases And Gas Mixtures - Determination Of Toxicity For The Selection Of Cylinder Valve Outlets* [4, 5, 6].

2 Scope and purpose

2.1 Scope

This publication applies to users, transporters, and manufacturers affected by label requirements and addresses classifications for gas mixtures that contain a toxic component(s). This standard categorizes gas mixtures under the transportation regulations that establish a toxicity threshold criterion based on LC_{50} rat 1 hr values.

2.2 Purpose

The purpose of this publication is to establish a means to categorize toxic gas mixtures based on acute toxicity.

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.