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Gas cylinders — Gases and gas mixtures — Determination of corrosiveness for the selection of cylinder valve outlet

Bouteilles à gaz — Gaz et mélanges de gaz — Détermination de la corrosivité pour le choix des raccords de sortie de robinets

Reference number
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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 2, *Cylinder fittings*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 23, *Transportable gas cylinders*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 13338:2017), which has been technically revised. The main changes are as follows:

— the corrosiveness of gases and gases mixtures has been clarified;

— the definition of FTSC codes for corrosiveness gases and gas mixtures has been clarified in Clause 4;

— minor editorial changes have been made in Table 1.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

ISO 5145 specifies the dimensions of different valve outlets for different compatible gas groups. These compatible gas groups are determined according to practical criteria defined in ISO 14456.

These criteria are based on certain physical, chemical, toxic and corrosive properties of the gases. In particular, the gas corrosiveness is considered in this document.

The aim of this document is to assign a classification category for each gas that takes into account the tissue corrosiveness of the gas for skin, eyes and the respiratory tract as well as the potential for a corrosiveness related acid/base chemical reaction.

For gas mixtures containing corrosive components, a calculation method based on the additivity method of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[3] is proposed.

However, for gas mixtures containing corrosive gas components, some valve outlets standards require the use of the corrosive category regardless of the corrosive gas concentration.

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Gas cylinders — Gases and gas mixtures — Determination of corrosiveness for the selection of cylinder valve outlet

1 Scope

This document specifies the following, in order to determine the corrosiveness of gases and gas mixtures so that a suitable outlet connection can be assigned to each of them:

— for pure gases and some liquids, a complete list indicating their corrosiveness;

— for gas mixtures, a calculation method, in the absence of experimental data, relating to the corrosiveness of each of their components.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
tissue corrosiveness
<gases or gas mixtures> ability of a gas to damage or destroy living tissues (eyes, skin and mucous membranes)

Note 1 to entry: It corresponds to GHS hazard class “Skin corrosion/irritation” Cat. 1, 1A, 1B or 1C, or to GHS hazard class “Serious eye damage/eye irritation”, Cat. 1.

3.2
irritant
property of a gas which can cause a temporary reaction to the skin, eyes and mucous membranes

Note 1 to entry: It corresponds to GHS hazard class “Skin corrosion/irritation”, Cat. 2, or to GHS hazard class “Serious eye damage/eye irritation”, Cat. 2.

4 Classification

Gas cylinder connections should take into account all aspects of corrosiveness as reflected in the subdivisions of the C code of the FTSC code (which includes tissue corrosiveness and acid/base chemical reactivity). The subdivisions of the FTSC code are given below and repeated in the footer of Table 1:

— 0: non-corrosive;

— 1: non-halogen acid forming;

— 2: basic;

— 3: halogen acid forming.

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