



SLOVENSKI STANDARD

SIST EN 1089-3:2011

01-november-2011

Nadomešča:
SIST EN 1089-3:2004

Premične plinske jeklenke - Označevanje jeklenk (razen UNP) - 3. del: Barvno označevanje

Transportable gas cylinders - Gas cylinder identification (excluding LPG) - Part 3: Colour coding

Ortsbewegliche Gasflaschen - Gasflaschen-Kennzeichnung (ausgenommen Flüssiggas LPG) - Teil 3: Farbcodierung

Bouteilles à gaz transportables - Identification de la bouteille à gaz (GPL exclu) - Partie 3: Code couleur

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Ta slovenski standard je istoveten z: EN 1089-3:2011

ICS:

01.070	Barvno kodiranje	Colour coding
23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders

SIST EN 1089-3:2011

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1089-3

July 2011

ICS 01.070; 23.020.30

Supersedes EN 1089-3:2004

English Version

**Transportable gas cylinders - Gas cylinder identification
(excluding LPG) - Part 3: Colour coding**

Bouteilles à gaz transportables - Identification de la
bouteille à gaz (GPL exclu) - Partie 3: Code couleur

Ortsbewegliche Gasflaschen - Gasflaschen-Kennzeichnung
(ausgenommen Flüssiggas (LPG)) - Teil 3: Farbcodierung

This European Standard was approved by CEN on 4 May 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 1089-3:2011) has been prepared by Technical Committee CEN/TC 23 "Transportable gas cylinders", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2012, and conflicting national standards shall be withdrawn at the latest by January 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1089-3:2004.

This document has been technically revised by the following:

- a) the white colouration of gas cylinder body dedicated for medical use;
- b) the new specific colour dedicated to nitric oxide/ nitrogen for medical use;
- c) the introduction of definitions (gas for medical use, breathing gas, industrial gas);
- d) the application of bright green colouration for inert gas mixtures N₂ or He with O₂ less than 20 % (exception for the two specific colours);
- e) the restriction of configuration of two colours on shoulder as quadrants to air (medical use or for breathing use);
- f) a guidance for the selection of shoulder with typical examples of assignment of colour.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The labelling of gas cylinders as required by the RID/ADR- Regulations is the primary method of indicating dangers of cylinder contents. However, colour coding is used to identify the contents of gas cylinders from a distance, e.g. in case of a fire. It is recognized that other systems are in use and may be used in conjunction with the requirements of this European Standard.

This European standard, along with EN ISO 13769, EN ISO 21007-1 and EN ISO 21007-2 belongs to a series of European Standards specifying gas cylinder identification requirements.

NOTE Labelling and marking of gas cylinders is subject to provisions of RID/ADR which take precedence over marking clauses in this standard.

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1 Scope

This European Standard specifies a colour coding system for the secondary method of identification of the contents of gas cylinders for industrial gases, breathing gas application and gases for medical use with particular reference to the properties of the gas or gas mixture.

This European Standard does not apply to cylinders containing liquefied petroleum gas (LPG), to refrigerant gases, to portable fire extinguishers or stationary cylinder extinguishing. Bundle colour coding is not addressed by this or other standards.

NOTE LPG includes substances carried under the UN number 1965 "Hydrocarbon gas mixture, liquefied, N.O.S."

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 10156, *Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets* (ISO 10156:2010)

ISO 5145, *Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning*

ISO 10298, *Determination of toxicity of a gas or gas mixture*

ISO 13338, *Determination of tissue corrosiveness of a gas or gas mixture*

European pharmacopoeia, monograph 1684

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3 Terms and definitions

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

3.1

gas for medical use

any gas or mixture of gases intended to be administered to patients for therapeutic, diagnostic or prophylactic purposes, with or without pharmacological action, or to be used for surgical tools, and it covers both medicinal and medical gases (see ISO 5145)

3.2

inert gas

non-toxic, non-corrosive, non-flammable and non-oxidizing gas or gas mixture

3.3

synthetic air

for medical use to refer to pharmacopoeia, monograph 1684, and for other use mixtures containing 20 % to 23,5 % oxygen in nitrogen to be considered

3.4

industrial gas

gas or gas mixtures not covered by 3.1 and not used for breathing gas use

3.5

breathing gas

gas filled in cylinders for breathing and diving application, excluding gas for medical use

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cylindrical part of a gas cylinder

4 Symbols and abbreviations

For the purposes of this document, the following symbols apply.

4.1**N.O.S.**

not otherwise specified

5 Principle

Colour coding is used to give information about the contents of gas cylinders from a distance e.g. in case of emergency and to distinguish between cylinders used for industrial and medical uses.

For all applications, hazard/identification colours shall be applied to cylinder shoulders.

For gases for medical use, the body of the cylinder shall also be colour coded (see 6.3).

For applications other than medical, the cylinder body may be coloured. The use of a colour for the cylinder body that allows misinterpretation of the hazard of the gas is not allowed.

Colours used shall be in accordance with RAL register 840HR given in Annex A or equivalent.

6 Colour coding system

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6.1 General

The following colour coding requirements are applicable to the shoulder and the body of the cylinder.

6.2 Shoulder**6.2.1 General**

Gas cylinders are assigned colours using three methods. Colours are chosen based on the properties of the contents in accordance with the hazard of the gas filled in the cylinder (6.2.2). Some specific gases and gas mixtures are assigned colours relevant to that gas or gas mixture as noted in 6.2.3 and 6.2.6. Instead of the hazard colour, other colour(s) may be assigned based on the components of a gas mixture (6.2.3 or 6.2.4 or 6.2.5).

Annex D gives guidance for the selection of shoulder colours.

6.2.2 Gas properties

6.2.2.1 Unless specifically identified in 6.2.3, 6.2.4, 6.2.5 or 6.2.6, all gases and gas mixtures shall be identified by a colour coding indicating the properties of the contents in accordance with the colour of the danger labels as specified in RID/ADR.

When two colours are applied to the cylinder shoulder, they should be in one of the formats (bands or quadrants) identified in Annex B.

The property shall be classified in a descending order of hazard as follows:

6.2.2.2 For gases with a single danger:

- a) toxic and/or corrosive (in accordance with ISO 10298 and ISO 13338) — yellow;
- b) flammable (in accordance with EN ISO 10156) — red;
- c) oxidizing (in accordance with EN ISO 10156) — light blue;
- d) inert¹⁾ — bright green.

The colour BRIGHT GREEN shall not be used for air for medical use or breathing application (see 6.2.5).

6.2.2.3 For gases with more than one danger:

When a gas or mixture has two hazard properties, then the cylinder shoulder shall be coloured in accordance with the primary hazard. The colour of the secondary hazard (flammable or oxidizing) may also be applied to the cylinder shoulder:

- a) toxic (and/or corrosive) and flammable — yellow plus red;
- b) toxic (and/or corrosive) and oxidizing — yellow plus light blue.

6.2.3 Specific single gases

6.2.3.1 The following gases shall be identified by specific colours rather than the colour system defined in 6.2.2.

a) Flammable gases:

Acetylene — Maroon.

b) Oxidizing gases:

Oxygen — White;

Nitrous oxide — Blue.

6.2.3.2 Inert gases for medical application shall be further differentiated by use of the following colours:

- a) Argon — Dark green;
- b) Nitrogen — Black;
- c) Carbon dioxide — Grey;
- d) Helium — Brown.

Specific colours of single gases described above are identical to ISO 32.

These colours may also be used for applications other than medical instead of the bright green colour (inert) as indicated in 6.2.2.

1) in accordance with 3.2