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## Gas cylinders — Precautionary labels

*Bouteilles à gaz — Étiquettes de risque*



Reference number  
ISO 7225:2005(E)

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## Foreword

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

ISO 7225 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 4, *Operational requirements for gas cylinders*.

This second edition cancels and replaces the first edition (ISO 7225:1994), which has been technically revised.

## Introduction

This International Standard belongs to a series of standards specifying gas cylinder identification requirements:

- ISO 13769, *Gas cylinders — Stamp marking*
- ISO 7225, *Gas cylinders — Precautionary labels*
- ISO 32, *Gas cylinders for medical use — Marking for identification of content*

The purpose of using precautionary labels on gas cylinders is to facilitate the identification of each cylinder and its content and to warn of the principal hazards associated with the said contents. Such labels can also serve to give other essential information such as the names and chemical formula of the gas or gas mixture and supplementary instructions on precautionary measures.

# Gas cylinders — Precautionary labels

## 1 Scope

This International Standard specifies the design, content (i.e. hazard symbols and text) and application of precautionary labels intended for use on individual gas cylinders containing single gases or gas mixtures. Labels for cylinders of bundles and labels for bundles are not covered by this International Standard.

## 2 Terms and definitions

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

### 2.1

#### hazard label

square set at an angle of 45° (diamond-shaped) as referenced in the *United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations*

NOTE Sometimes referred to as risk label.

## 3 Design and content of precautionary labels

### 3.1 General

Precautionary labels shall be in accordance with the *United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations* or other applicable transport regulations. See Annex A for examples of hazard labels.

Precautionary labels shall be designed, attached and maintained so they are clearly visible and legible.

Precautionary labels shall consist of two components:

- a) a diamond-shaped part or parts, i.e. a primary hazard label and – in cases where two or three kinds of hazard require identification – one or two subsidiary hazard labels;
- b) a panel.

Where two or three hazard labels are necessary, the subsidiary hazard label(s) shall be placed to the right of the primary hazard label. Labels may overlap as illustrated in Figures 1 to 3. In all cases, the labels representing the primary hazard and the numbers appearing on any label shall remain fully visible, and the symbols shall be recognizable.

The labels and panels as shown in Figures 1 to 4 may be manufactured separately and assembled on the gas cylinder.

Figures 1 to 4 show examples of arrangements of the label(s) and panel; other arrangements of the label(s) are permissible (e.g. the label may be above or beneath the panel).

**3.2 Size and shape**

**3.2.1 Label size and shape**

The size and shape of the labels are illustrated in Figures 1 to 4. Minimum lengths, *a*, of the sides of the label shall be as specified in Table 1.

**Table 1 — Size of label**

Dimensions in millimetres

Cylinder outside diameter <i>D</i>	Length of side of label <i>a</i>
$D < 75$	$a \geq 10$
$75 \leq D < 180$	$a \geq 15$
$D \geq 180$	$a \geq 25$

**3.2.2 Panel size and shape**

The size and shape of panels are a matter of choice. For examples, see Figures 1 to 4.

**3.3 Materials**

The labels and adhesives shall be made of a material that is durable under foreseeable conditions of transportation, storage and use. The adhesive used for the label shall be compatible with the external surface cylinder material.

**3.4 Colour**

**3.4.1 Colour of hazard label**

The background colour of the hazard labels shall be in accordance with the *United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations* (see Table A.1). Table A.2 provides examples.

**3.4.2 Colour of panel**

The colour and the presentation for the panels shall be such that there is a contrast with the colour of the hazard label.

**3.5 Content**

**3.5.1 Label content**

The colour, design, symbols, numerals, and text comprising each label shall be as required by the *United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations* or other applicable modal transport or national regulations.

**3.5.2 Panel content**

The panel shall indicate the additional information required by the applicable legislation on the transport of dangerous goods and the legislation on the labelling of dangerous substances and preparations such as

- a) identification of content; e.g. proper shipping name and UN number as specified by the *United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations*;

- b) supplementary indications on the hazards of the content and precautions to be observed in the storage and use of the cylinder and its content;
- c) name and address of company responsible for filling;
- d) filling mass for gases filled by weight, if not mentioned elsewhere.

An additional label may be affixed to the cylinder for the information above. In any case, the hazard label(s) and the identification of the content according to transport legislation shall appear on the same label to be affixed to the cylinder according to 4.3.

## 4 Application of precautionary labels

### 4.1 Filler responsibility

The filler shall ensure that the attachment, removal, or replacement of the label is in accordance with the cylinder content.

### 4.2 Attaching labels

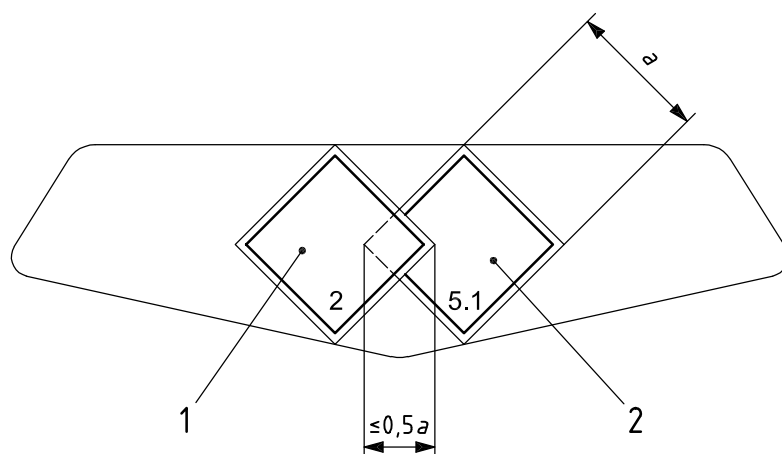
The labels shall be firmly attached to the cylinder and shall be maintained in a legible condition.

### 4.3 Label location

The label shall not cover any permanent markings necessary for filling. The preferred location of labels specified in 3.2.1 is on the rounded part of the cylinder or immediately below (maximum 50 mm). For small size cylinders (10 l and below), these labels may be affixed on the body of the cylinders. If the dimensions permit, the label may be located on the cylinder neck ring. Hazard labels equal to or greater than 100 mm by 100 mm shall be located on the cylindrical part of the cylinder.

### 4.4 Consideration of existing labels

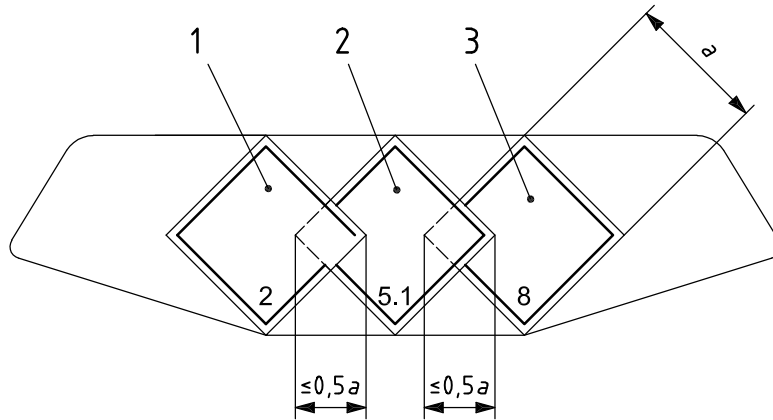
Affixing new labels over old labels is permitted only if the information content of the labels is identical. In all other cases, the existing labels shall be removed completely. The primary hazard is designated by having the primary hazard label overlap the subsidiary hazard label (see Figure 1).



#### Key

- 1 primary hazard label
- 2 subsidiary hazard label

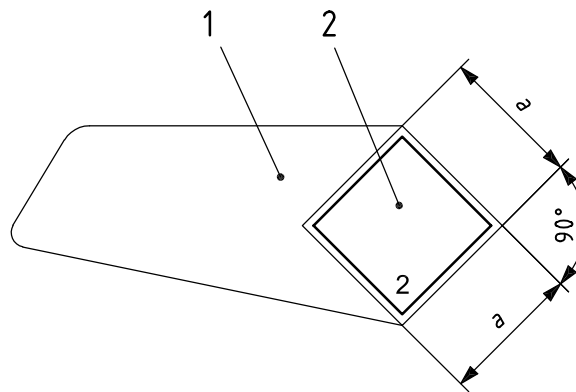
Figure 1 — Example of primary and subsidiary hazard label and panel



**Key**

- 1 primary hazard label
- 2 first subsidiary hazard label
- 3 second subsidiary hazard label

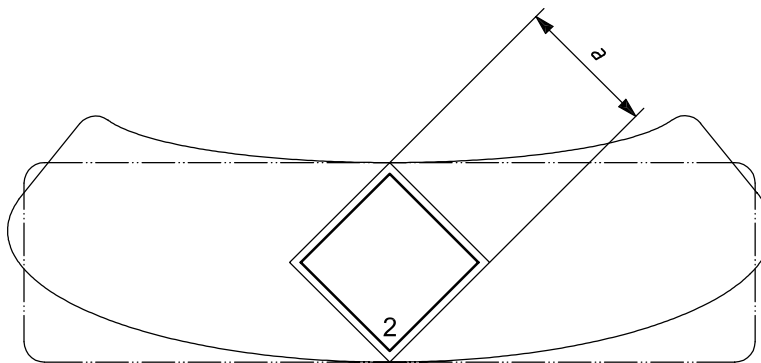
**Figure 2 — Example of primary and two subsidiary hazard labels and panels**



**Key**

- 1 panel containing information required in 3.5.2, proper shipping name and UN number (size and shape of the panel are a matter of choice)
- 2 hazard label containing hazard symbol, the class number according to Table A.1 and, as an option, the hazard description

**Figure 3 — Example of primary hazard label and panel**










**Figure 4 — Example of single label and curved or rectangular panel**



## Annex A (informative)

### Examples of hazard labels

Table A.1 — Class numbers and colours of labels

Label number	Labels	Class number in the bottom corner	Colours of the label
2.2	 or 	2	green + white or green + black
2.1	 or 	2	red + white or red + black
2.3		2	white + black
5.1		5.1	yellow + black
8		8	white + black

**NOTE** Ensure that the label number is not confused with the division or subsidiary hazard numbers.

Table A.2 — Examples of hazard labels for cylinders indicating class number

Division <sup>a</sup>	Subsidiary hazard <sup>b</sup>	Label(s) <sup>c, d</sup>				Examples	
2.2			or			UN 1013 CARBON DIOXIDE	
2.2	5.1		or		and		UN 1072 OXYGEN, COMPRESSED
2.1			or				UN 1011 BUTANE <sup>e</sup>
2.3							UN 1062 METHYL BROMIDE
2.3	2.1		and				UN 1016 CARBON MONOXIDE, COMPRESSED
2.3	8		and				UN 1017 CHLORINE
2.3	5.1		and				UN 3083 PERCHLORYL FLUORIDE
2.3	2.1, 8		and		and		UN 2189 DICHLOROSILANE
2.3	5.1, 8		and		and		UN 1045 FLUORINE, COMPRESSED

<sup>a</sup> As given in column 3 of the Dangerous Goods List in Chapter 3.2 of the UN *Recommendations on the Transport of Dangerous Goods — Model Regulations* (13th revised edition).

<sup>b</sup> As given in column 4 of the Dangerous Goods List in Chapter 3.2 of the UN *Recommendations on the Transport of Dangerous Goods — Model Regulations* (13th revised edition).

<sup>c</sup> Labels indicating the primary hazard for class 2 shall bear class numbers in the bottom corner as indicated in Table A.1.

<sup>d</sup> Colours used for labels are primary colours or black and white.

<sup>e</sup> Symbols, text and numbers may be shown in the background colour of the receptacle if adequate contrast is provided.

## Bibliography

- [1] *Recommendations on the Transport of Dangerous Goods — Model Regulations*, thirteenth revised edition, United Nations

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