INTERNATIONAL STANDARD

ISO 7225

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Precautionary labels for gas cylinders

Étiquettes informatives des bouteilles à gaz

Reference number
ISO 7225:1994(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7225 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*.

Annexes A and B of this International Standard are for information only.

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Introduction

The purpose of using warning labels on gas cylinders is to facilitate the identification of each cylinder and its contents and to provide a warning of the principal hazards associated with them. Such labels can also provide other essential information, such as the name and chemical formula of the gas, or the names and chemical formulae of the constituents of a gas mixture, and supplementary instructions concerning precautionary measures to be taken.

It is essential that such labels be designed, affixed and maintained so that they are clearly visible and legible for as long as the cylinders remain in service with the same gas.

This International Standard has been prepared in conformity with the following regulations for the transport of dangerous goods adopted by other international organizations:

Accord européen relatif au transport international des marchandises dangereuses par route (ADR), from United Nations Economic Commission for Europe (UN/ECE)

International Maritime Dangerous Goods (IMDG) code, from the Intergovernmental Maritime Consultative Organization (IMO)

The convention on International Civil Aviation, Annex 18, and the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc. 9284), from the International Civil Aviation Organization (ICAO).

Règlement international concernant le transport des marchandises dangereuses par chemins de fer (RID), from Office Central des Transports Internationaux par chemin de fer (OCTI)

United Nations Economic and Social Council (UN/ECOSOC) recommendations for the transport of dangerous goods, from the United Nations Committee of Experts on the Transport of Dangerous Goods.

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Precautionary labels for gas cylinders

1 Scope

This International Standard specifies the design, content, i.e. hazard symbols and text, and application of warning labels for gas cylinders.

These warning labels are intended for use on all gas cylinders containing single gases or gas mixtures.

Where international or national transport regulations demand labelling of gas cylinders, this International Standard may be used.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 448:1981, *Gas cylinders for industrial use — Marking for identification of content.*

3 Design and content of precautionary labels

3.1 General

Warning labels consist of two components:

a) a diamond-shaped part or parts, i.e. a primary hazard diamond and, in cases where two or three kinds of hazard exist, one or two subsidiary hazard diamonds;

b) a panel, on (or near) which the diamonds are located.

Where two or three hazard diamonds are necessary, the subsidiary hazard diamond(s) shall be placed to the right of the primary hazard diamond. In configurations in which the hazard diamonds overlap, the primary hazard diamond shall partially cover the subsidiary hazard diamond(s) so that, in all cases, the primary hazard diamond remains unobscured. [see, for example, figure 2, a), b) and c)].

The diamonds and panels may be manufactured separately and assembled on the gas cylinder.

Figures 1 to 3 show examples of arrangements of the diamond(s) and panel; other arrangements of the diamond(s) are permissible, e.g. they may be above or beneath the panel.

Examples of warning labels are given in annex A.

3.2 Size and shape

3.2.1 Diamond

The size and shape of the diamonds are illustrated in figures 1 to 3. Recommended lengths of the sides of the diamond are given in table 1. Other lengths may be used provided that the hazard warning is clearly visible in relation to the size of the cylinder. In no case shall the side of the diamond be less than 10 mm in length.

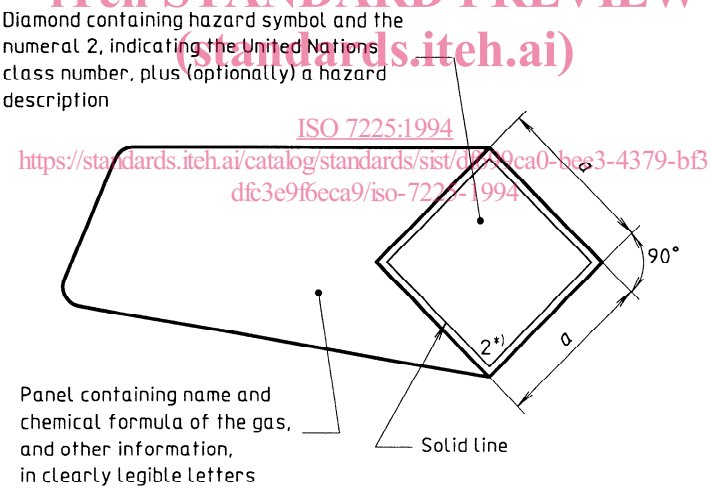
3.2.2 Panel

The size and shape of panels are not specified (see figures 1 to 3).

Table 1 — Size of diamond

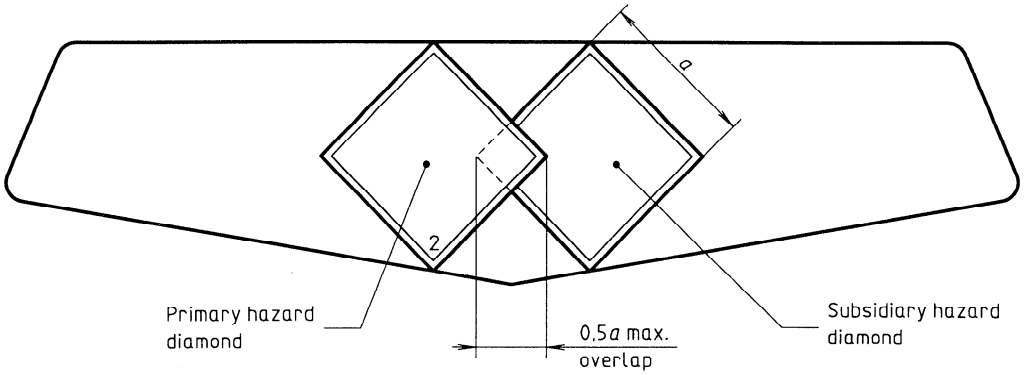
Dimensions in millimetres

Cylinder outside diameter D	Length of side of diamond a
$D < 75$	$a \geqslant 10$
$75 \leqslant D < 180$	$a \geqslant 15$
$D \geqslant 180$	$a \geqslant 25$

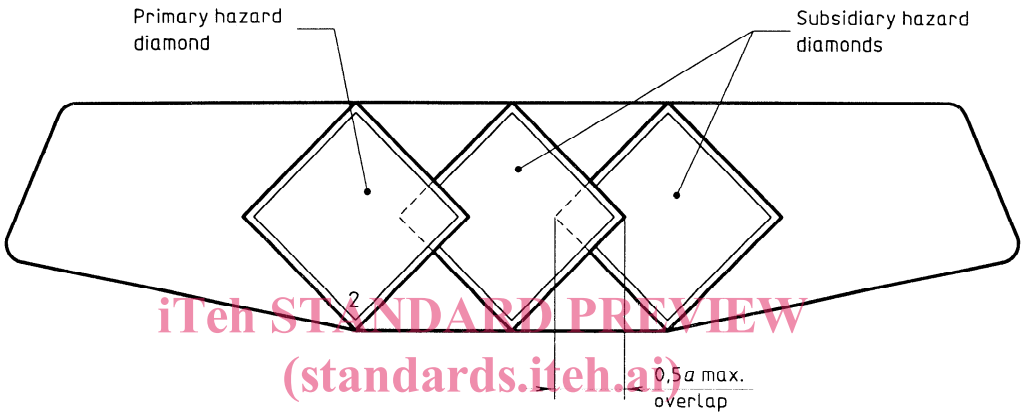


*) Subsidiary hazard diamonds shall have no number in the bottom corner.

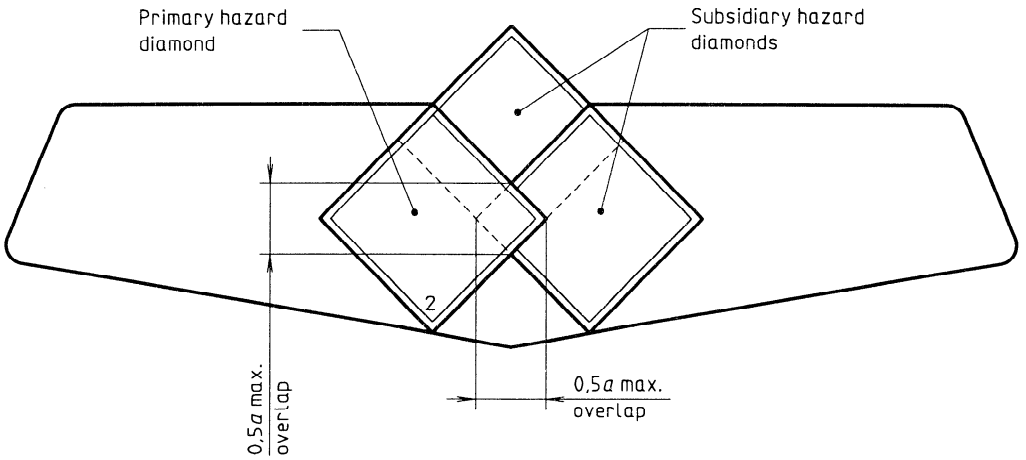
Figure 1 — Primary hazard diamond and panel



a) Primary and subsidiary hazard diamonds and double panel



b) Primary and two subsidiary hazard diamonds arranged in a line, and double panel



c) Primary and two subsidiary hazard diamonds arranged in a triangle, and double panel

Figure 2 — Arrangements of primary and subsidiary hazard diamonds and double panels

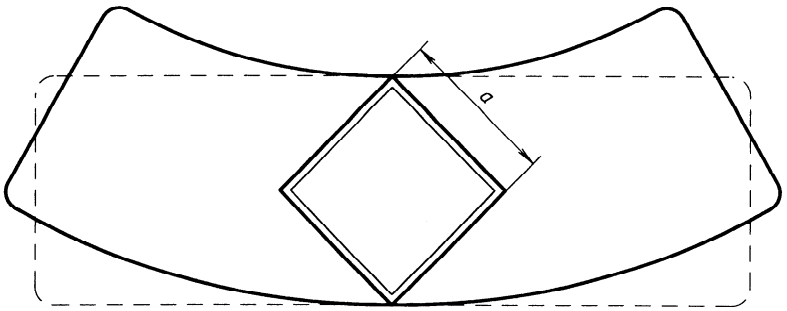


Figure 3 — Single diamond and curved or rectangular double panel

3.3 Material

The labels shall be made of a material which is durable under foreseeable conditions of transportation, storage and use.

3.4 Colour

3.4.1 Diamond

The background colour of the diamonds shall be in accordance with table 2.

3.4.2 Panel

The colour of the panels shall be such that there is a contrast with the colour of the diamond. The colour white is recommended.

3.5 Content

3.5.1 Diamond

The primary hazard diamond shall indicate the numeral 2[1], in accordance with the classification system for dangerous goods established by the United Nations.

If more than one hazard diamond is required, the numeral shall only be shown on the diamond for the primary hazard.

In addition, the diamond shall indicate the appropriate hazard symbol specified in table 2 and may include a statement (i.e description) of the hazard (see table 2).

The size of the lettering and symbol shall be such that they are easily identifiable and clearly legible in proportion to the size of the diamond.

The symbols shall be printed in black.

The lettering shall be printed in black except for the hazard "corrosive gas" in which case the lettering, i.e. the optional statement "corrosive", shall be printed in white on the black lower half of the diamond.

Each label shall have a line, of the same colour as the hazard symbol, inside the edge and running parallel with it at a distance of $0{,}05a$.

3.5.2 Panel

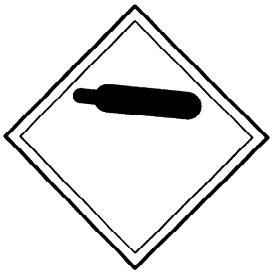
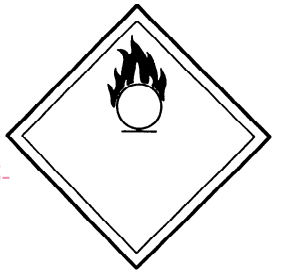
The panel shall indicate other essential information such as

- for a single gas: at least the chemical name and chemical formula in accordance with ISO 448;
- for a gas mixture: the chemical names and chemical formulae of at least all components influencing the hazardous property, or a generic term or trade name, provided the chemical names and chemical formulae of the main components are identified either on the label or elsewhere on the cylinder in accordance with ISO 448;
- supplementary instructions or precautions to be observed in the transportation, storage and use of the cylinder and its contents;
- the name and address of the firm legally responsible for putting the product on the market.

The size of the lettering shall be such that it is easily identifiable and clearly legible in proportion to the size of the panel. The lettering shall be printed in a colour which contrasts with the background.

1) Not relevant for corrosive gases.

Table 2 — Hazard identification

Gas under pressure	Hazard diamond		
Property of gas or gas mixture[1]	**Statement of hazard**[2]	**Background colour**	**Symbol** (in upper half of diamond)
Flammable	Flammable gas	Red	
Compressed or liquefied, non-flammable Non-toxic		Green	
Oxidizing	Oxidizing agent	Yellow	
Toxic	Poisonous gas	White	
Corrosive	Corrosive gas	Upper half of diamond: white Lower half of diamond: black	

1) The requirements on classification of a gas and hence the choice of number of diamonds needed are to be found in transport regulations and similar documents.

2) If a written statement of hazards is used, one of the official languages of the International Maritime Dangerous Goods (IMDG) code or the language of the country of the filler or user shall be used.