INTERNATIONAL STANDARD

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Graphical symbols — Safety colours and safety signs —

Part 2:
Design principles for product safety labels

Symboles graphiques — Couleurs de sécurité et signaux de sécurité —

Partie 2: Principes de conception pour l'étiquetage de sécurité des produits

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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 3864-2 was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 2, *Safety identification, signs, shapes, symbols and colours*.

ISO 3864 consists of the following parts, under the general title *Graphical symbols — Safety colours and safety signs*:

⎯ *Part 1: Design principles for safety signs in workplaces and public areas*

⎯ *Part 2: Design principles for product safety labels*

⎯ *Part 3: Design criteria for graphical symbols used in safety signs*

Introduction

There is a need to standardize a system of communicating safety information on products. This part of ISO 3864 provides layouts for product safety labels that can be used to convey safety information related to the installation, operation, use, maintenance and/or disposal of a product. Product safety labels are not to be used as safety signs on walls in workplaces and public buildings.

This part of ISO 3864 builds on the system of hazard communication set forth in ISO 3864-1. This part of ISO 3864 sets forth additional layouts for product safety labels that assist in communicating:

a)   the severity level of the hazard, and

b)   supplementary safety information in word or symbolic form.

To assist in the communication of safety information across language barriers, all of the product safety label layouts shown in this part of ISO 3864 incorporate safety signs. This part of ISO 3864 includes product safety label layouts that use only safety signs as well as layouts that use additional graphical symbols and text. Product safety labels that include text can be used when some of the necessary safety information cannot be communicated in symbolic form, when the combination of safety sign with text is judged to be more effective or when legal requirements in countries mandate the use of text to communicate safety information. Education is an essential part of any system that provides safety information. Because the amount of safety information necessary to operate or service a product safely may be more than can be conveyed in a product safety label, a product's accompanying documentation (e.g. product literature, installation manual, operation manual, service manual) may supplement the product's safety labels to provide the user with the additional information necessary for safety. A product's user documentation also offers a place to educate users on the meaning of the safety signs and supplementary safety information symbols shown on the product's safety labels (see Annex A).

When a product safety label is to be developed, the hazards associated with the product and their corresponding risks should be evaluated. Many factors are considered when deciding whether or not to warn, whether to warn on the product in the form of a product safety label and/or to warn in user documentation. Such factors include the severity of the risk, the probability of engaging the hazard, the degree to which the risk is obvious, and the type of person likely to possibly engage the hazard.

Graphical symbols — Safety colours and safety signs —

Part 2:
Design principles for product safety labels

IMPORTANT — The colours represented in the electronic file of this part of ISO 3864 can be neither viewed on screen nor printed as true representations. Although the copies of this part of ISO 3864 printed by ISO have been produced to correspond (with an acceptable tolerance as judged by the naked eye) to the colour requirements, it is not intended that these printed copies be used for colour matching. Instead, refer to the colorimetric and photometric properties specified in 4.1 and ISO 3864-1. As guidelines, references from colour order systems are provided in Annex E for safety colour orange and in ISO 3864-1:2002, Annex A, for other safety colours.

1 Scope

This part of ISO 3864 establishes additional principles to ISO 3864-1 for the design of safety labels for products, i.e. any items manufactured and offered for sale in the normal course of commerce, including but not limited to consumer products and industrial equipment. The purpose of a product safety label is to alert persons to a specific hazard and to identify how the hazard can be avoided.

This part of ISO 3864 is applicable to all products in all industries where safety-related questions can be posed. However, it is not applicable to safety labels used:

⎯ for chemicals;

⎯ for the transport of dangerous substances and preparations;

⎯ in those sectors subject to legal regulations which differ from certain provisions of this document.

The design principles incorporated in this part of ISO 3864 are intended to be used by all ISO Technical Committees and anyone designing product safety labels in the development of product safety label standards for their industries or services.

Statutory or regulatory requirements in some countries may differ from some requirements given in this part of ISO 3864. To facilitate international standardization of product safety labels, this part of ISO 3864 should be considered when revising regulations.

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.

ISO 3864-1, *Graphical symbols, Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas*

ISO 17724, *Graphical symbols — Vocabulary*

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3   Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17724 and the following apply.

3.1
CAUTION
signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury

NOTE   Adapted from ISO 17724.

3.2
combination product safety label
combination of product safety sign and/or supplementary safety information and/or hazard severity panel on one rectangular label

NOTE   A combination product safety label conveys one safety message.

3.3
DANGER
signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury

NOTE   Adapted from ISO 17724.

3.4
general warning sign
safety sign used to signify a general hazard

NOTE   This safety sign can be used to draw attention to a product safety label (see Figure A.5).

3.5
harm
physical injury and/or damage to health or property

NOTE   Adapted from ISO/IEC Guide 51.

3.6
hazard
source of potential harm

NOTE 1   Adapted from ISO/IEC Guide 51.

NOTE 2   The term hazard is generally qualified in order to define its origin or the nature of the expected harm (e.g. electric shock hazard, crushing hazard, cutting hazard, toxic hazard, fire hazard, drowning hazard).

3.7
hazard severity panel
area of a combination or multiple product safety label that communicates the category of risk associated with a hazard

NOTE   This panel contains the general warning sign, a signal word and the corresponding background colour (see Table 3).

3.8
multiple product safety label
product safety label that contains two or more safety signs on the same rectangular label and, if used, the supplementary safety information and/or the hazard severity panel

3.9
product safety label
label on a product that informs the observer of one or more potential hazards and describes the safety precautions and/or actions required to avoid the hazard(s)

[ISO 17724]

NOTE   It communicates a hazard, a hazardous situation, a precaution to avoid a hazard, and/or a result of not avoiding a hazard.

3.10
residual risk
risk remaining after protective measures have been taken

[ISO/IEC Guide 51]

3.11
risk
combination of the probability of occurrence of harm and the severity of that harm

[ISO/IEC Guide 51]

3.12
safety colour
colour with special properties to which a safety meaning is attributed

[ISO 17724]

3.13
safe viewing distance
distance a person can be from the product safety label while still able to read the label accurately and have the opportunity to follow the product safety label's message

3.14
signal word
word that calls attention to a product safety label and designates a category of risk

3.15
supplementary safety information panel
safety information symbol or safety information text whose main purpose is to provide additional clarification

NOTE   A supplementary safety information panel typically communicates hazard consequence or hazard avoidance information.

3.16
target audience
person(s) to whom the product safety label is intended to convey its safety information

3.17
tolerable risk
risk which is accepted in a given context based on the current values of society

[ISO/IEC Guide 51]

NOTE   Clarifications on tolerable risks are given in Annex D.1.

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3.18
WARNING
signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury

[ISO 17724]

4 Purpose of safety colours

4.1 General

There are two basic purposes for using a specific safety colour on a product safety label:

a) the use of colour rapidly draws attention to the product safety label so that it is easily noticed;

b) the safety colour coding serves to identify and give meaning (through training and/or repeated exposure) to the product safety label as a whole and to its component parts.

Only safety colours in accordance with ISO 3864-1 colorimetric and photometric specifications shall be used, in addition to the colour orange which shall only be used on a WARNING hazard severity panel. Tables 1 and 2 specify the colorimetric and photometric properties of the colour orange. Annex E provides references from colour order systems for the safety colour orange.

Table 1 — Chromaticity coordinates and luminance factor for the colour orange for ordinary materials

Coordinate	Chromaticity coordinates of corner points determining the permitted colour area: Standard illuminant D65 CIE 2° Standard observer				Luminance factor
	1	2	3	4	β
x	0,603	0,538	0,508	0,563	$\geqslant 0{,}21$
y	0,397	0,382	0,412	0,436	

Table 2 — Chromaticity coordinates and luminance factor for the colour orange for tighter areas in the chromaticity diagram for ordinary materials

Coordinate	Chromaticity coordinates of corner points determining the permitted colour area: Standard illuminant D65 CIE 2° Standard observer				Luminance factor
	1	2	3	4	β
x	0,590	0,552	0,532	0,567	$\geqslant 0{,}25$
y	0,410	0,398	0,418	0,432	

4.2 Contrast colours

Contrast colours shall be in accordance with ISO 3864-1. The contrast colour for orange is black.

4.3 Use of colour

When a geometric shape is used around a graphical symbol, the shape's corresponding safety colour shall identify the type of safety information to be conveyed by the graphical symbol (e.g. warning, prohibition or mandatory action, see ISO 3864-1).

When a hazard severity panel is used, colour shall be used to identify the hazard severity panel's corresponding degree of hazard severity (e.g. DANGER, WARNING or CAUTION, see Table 3).

Table 3 — General meaning and use of colours in hazard severity panels

Background colour of panel	Contrast colour	Meaning/Use	Hazard severity panel illustration
Red	White	DANGER hazard severity panel to identify a high level of risk	⚠ **DANGER**
Orange	Black	WARNING hazard severity panel to identify a medium level of risk	⚠ **WARNING**
Yellow	Black	CAUTION hazard severity panel to identify a low level of risk	⚠ **CAUTION**
The outer yellow border to the general warning sign is an option and may be omitted.			
NOTE The safety sign incorporated in these hazard severity panels is the general warning sign W001 specified in ISO 7010.			

5   Hazard severity panels

5.1   General

If the level of hazard severity is to be indicated, a hazard severity panel shall be added to the top of the combination or multiple product safety label. When hazard severity panels are used they shall be rectangular in shape and, as given in Table 3, shall contain all three elements as follows:

a)   the general warning sign;

b)   the signal word;

c)   the corresponding colour.

5.2   Layout of hazard severity panels

The hazard severity panel shall contain the general warning sign followed by the signal word. The signal word and the general warning sign shall be centred together in the hazard severity panel (see Table 3).

5.3   Signal word options

The signal word shall alert viewers to the severity and level of risk of harm (i.e. an estimate of the likelihood of exposure to the hazard and of the probable consequences of exposure to the hazard). There are three choices for a signal word for the hazard severity panel:

— DANGER;

— WARNING; or

— CAUTION.

(See Annex B for standardized signal words in other languages.)

Signal words shall appear in upper case and bold fonts.

6 Type and layout of product safety labels

6.1 General

A product safety label shall comprise of one or more safety signs. In addition, a product safety label may be accompanied by one or more supplementary safety information panels and a hazard severity panel. Supplementary safety information panels shall consist of either text or a supplementary safety information symbol.

Product safety labels shall conform to one of the following seven basic types:

a) single safety sign;

b) single safety sign used with a separated supplementary safety information text panel;

c) single safety sign used with a separated supplementary safety information text panel which includes a hazard severity panel;

d) combination product safety label not incorporating a hazard severity panel;

e) combination product safety label incorporating a hazard severity panel;

f) multiple product safety label not incorporating a hazard severity panel;

g) multiple product safety label incorporating a hazard severity panel.

NOTE 1   Examples of product safety labels are given in Annex C.

NOTE 2   Development considerations for product safety labels are given in Annex D.

6.2 Single safety sign

When a product safety label is comprised of a single safety sign, the layout of the product safety label shall use the shape and colour of a safety sign as defined in ISO 3864-1 (see Figure 1).

Products generally require more than one safety sign to communicate both hazard identification and hazard avoidance information. Thus, safety signs are generally used together; either combined on a multiple product safety label or used individually (e.g. a warning sign placed next to a mandatory action sign and/or a prohibition sign). See ISO 3864-1 to determine the proper layout and colours for warning, mandatory action and prohibition safety signs.

| Warning | Prohibition | Mandatory action |

Figure 1 — Layout of safety signs as defined by ISO 3864-1