SLOVENSKI STANDARD
SIST ISO 3864-1:2003

01-julij-2003

Nadomešča:
SIST ISO 3864:1995

Grafični simboli – Opozorilne barve in opozorilni znaki – Načela načrtovanja opozorilnih znakov na delovnem mestu in na javnih površinah

Graphical symbols -- Safety colours and safety signs -- Part 1: Design principles for safety signs in workplaces and public areas

Symboles graphiques -- Couleurs de sécurité et signaux de sécurité -- Partie 1: Principes de conception pour les signaux de sécurité sur les lieux de travail et dans les lieux publics

Ta slovenski standard je istoveten z: **ISO 3864-1:2002**

ICS:

01.080.10	Simboli za javne informacije	Public information symbols
13.200	Preprečevanje nesreč in katastrof	Accident and disaster control

SIST ISO 3864-1:2003 **en**

INTERNATIONAL STANDARD

ISO 3864-1

First edition
2002-05-15

Corrected version
2003-12-15

Graphical symbols — Safety colours and safety signs —

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

Symboles graphiques — Couleurs de sécurité et signaux de sécurité — Partie 1: Principes de conception pour les signaux de sécurité sur les lieux de travail et dans les lieux publics

Reference number
ISO 3864-1:2002(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Printed in Switzerland

Contents

Page

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 3.

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 part of ISO 3864 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3864-1 was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 2, *Safety identification, signs, shapes, symbols and colours*.

This part of ISO 3864, together with ISO 7010, cancels and replaces ISO 3864:1984, which has been technically revised.

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*

The following part is under preparation:

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

Annex A of this part of ISO 3864 is for information only.

This corrected version of ISO 3864-1:2002 incorporates the following corrections:

— the addition on page 1 of an important remark on the use of the colours represented within;

— the addition in Table A.1 of details of the RAL colour order system;

— the addition of bibliographic references.

Introduction

There is a need to standardize the system for conveying safety information so that it relies as little as possible on the use of words to achieve understanding. As a consequence of continued growth in international trade, travel and mobility of labour, it has become necessary to establish a universal communications method for conveying safety information.

Lack of standardization can lead to confusion and even accidents. Education is an essential part of any system that provides safety information.

Although safety colours and safety signs are essential to any safety information system, they cannot replace the use of proper working methods, instructions and accident-prevention measures and training.

Graphical symbols — Safety colours and safety signs —

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

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 Clause 11. Annex A provides references from colour order systems for information.

1 Scope

This International Standard establishes the safety identification colours and design principles for safety signs to be used in workplaces and in public areas for the purpose of accident prevention, fire protection, health hazard information and emergency evacuation. It also establishes the basic principles to be applied when developing standards containing safety signs.

This part of ISO 3864 is applicable to workplaces and all locations and all sectors where safety-related questions may be posed. However, it is not applicable to the signalling used for guiding rail, road, river, maritime and air traffic and, generally speaking, to those sectors subject to a regulation which may differ.

NOTE Some countries statutory regulations might differ in some respect from those given in this part of ISO 3864.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 3864. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 3864 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*

ISO 7001, *Public information symbols*

ISO 7010, *Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas*

ISO 9186, *Graphical symbols — Test methods for judged comprehensibility and for comprehension*

ISO/CIE 10526, *CIE standard illuminants for colorimetry*

CIE 15.2, *Colorimetry*, second edition

CIE 54, *Retroreflection — Definition and measurement*

IEC 60050-845:1987, *International electrotechnical vocabulary (IEV) — Chapter 845: Lighting*

IEC 60417 database, *Graphical symbols for use on equipment* [Available at <http://domino.iec.ch/iec60417>]

3 Terms and definitions

For the purposes of this part of ISO 3864, the following terms and definitions apply.

3.1
coefficient of retroreflection
R'
⟨plane retroreflecting surface⟩ luminous intensity (I) of a plane retroreflecting material in the direction of observation divided by the product of the illuminance ($E_\perp$) of the retroreflecting surface on a plane perpendicular to the direction of the incident light and its area (A)

$$R' = \frac{I}{E_\perp A}$$

3.2
combined material
material which combines the optical characteristics of photoluminescent and retroreflective materials

3.3
critical detail
element of a graphical symbol without which the graphical symbol cannot be understood

3.4
fluorescence
photoluminescence in which the emitted optical radiation results from direct transitions from the photo-excited energy level to a lower level, these transitions taking place generally within 10 ns after the excitation

[IEC 60050-845-04-20:1987]

3.5
luminance contrast
k
luminance of the contrast colour L_1 divided by the luminance of the safety colour L_2 where L_1 is greater than L_2

$$k = \frac{L_1}{L_2}$$

3.6
luminance factor
ratio of the luminance of the surface element in a given direction to that of a perfect reflecting or transmitting diffuser identically illuminated

3.7
luminescence
emission, by atoms, molecules or ions in a material, of optical radiation which for certain wavelengths or regions of the spectrum is in excess of the radiation due to thermal emission from that material at the same temperature, as a result of these particles being excited by energy other than thermal agitation

[IEC 60050-845-04-18:1987]

3.8
ordinary material
material which is neither retroreflecting nor luminescent

3.9
retroflecting material
material which reflects radiation in a direction close to the opposite of the direction from which it came

3.10
phosphorescence
photoluminescence delayed by storage of energy in an intermediate energy level

[IEC 60050-845-04-23:1987]

3.11
photoluminescence
luminescence caused by absorption of optical radiation

[IEC 60050-845-04-19:1987]

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

NOTE Properties of safety colours are given in clause 11.

3.13
safety marking
marking which adopts the use of safety colours and/or safety contrast colours to convey a safety message or render an object or location conspicuous

3.14
safety sign
sign which gives a general safety message, obtained by a combination of a colour and geometric shape and which, by the addition of a graphical symbol, gives a particular safety message

3.15
supplementary sign
sign that is supportive of another sign and the main purpose of which is to provide additional clarification

4 Purpose of safety colours and safety signs

4.1 The purpose of safety colours and safety signs is to draw attention rapidly to objects and situations affecting safety and health and to gain rapid understanding of a specific message.

4.2 Safety signs shall be used only for instructions which are related to safety and health.