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Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety labels — General principles

Tracteurs et matériels agricoles et forestiers, matériels à moteur pour jardins et pelouses — Étiquetage de sécurité — Principes généraux

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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 14, *Operator controls, operator symbols and other displays, operator manuals*.

This second edition cancels and replaces the first edition (ISO 11684:1995), which has been technically revised.

The main changes are as follows:

— the title has been changed for clarification, i.e. "*Safety signs and hazard pictorials*" has been changed to "*Safety labels*";

— the scope has been modified to clarify the state of the art;

— Clause 3 (Terms and definitions) has been added to define safety labels;

— the normative references and the terms and definitions' source information have been updated;

— the term "sign" has been changed to label where appropriate to align with TC 145/SC 2;

— the title of Annex F (former Annex D) has been updated;

— the Bibliography has been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The purpose of this document is to provide, for tractors, machinery for agriculture and forestry, and powered lawn and garden equipment, general principles for the design of safety labels to alert persons to a hazard, describe the nature of that hazard, describe the consequences of potential injury from it, and instruct persons on how to avoid it. The continued growth in international trade and commerce has made it necessary to establish a universal communication method for conveying safety information.

This document satisfies the global need to harmonize the system for conveying safety information using graphical means so that it relies as little as possible on the use of text messages. Safety labels that include text can be used when some of the necessary safety information cannot be communicated in graphical form.

Education is an essential part of any system that provides safety information. Although safety colours and labels are essential to any safety information system, they can be used only to supplement job site management practices such as proper working methods, instructions, accident prevention measures and training.

Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety labels — General principles

1 Scope

This document establishes general principles for the design of safety labels and hazard pictorials permanently affixed to, or displayed electronically on, tractors, machinery for agriculture and forestry, and powered lawn and garden equipment. This document outlines safety label objectives, describes the basic safety label formats and colours, provides guidance on developing the various panels that together constitute a safety label, and includes safety label information with regard to operator's manuals.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements for this document. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3600, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and format*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 3864-4, *Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials*

ISO 11783-6, *Tractors and machinery for agriculture and forestry — Serial control and communications data network — Part 6: Virtual terminal*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
safety label
label that informs the observer of one or more potential hazards and describes the safety precautions and/or actions required to avoid the hazard(s)

Note 1 to entry: It communicates a hazard, a hazardous situation, a precaution to avoid a hazard and/or a result of not avoiding a hazard.

Note 2 to entry: Adapted from ISO 3864-2.

3.2
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 or hazard pictorial, gives a particular safety message

[SOURCE: ISO 3864-1:2011, 3.12]

3.3
border
band that defines the edge of a label or graphical symbol

[SOURCE: ISO 17724:2003, 5]

3.4
panel
area of a *safety label* (3.1) that has a distinctive background colour different from adjacent areas of the label, or which is clearly delineated by a *border* (3.3)

[SOURCE: ISO 17080:2005, 2.2, modified — "product safety" was changed to "safety".]

3.5
signal word panel
area of a *safety label* (3.1) containing a signal word to communicate the category of risk associated with a hazard

3.6
signal word
word that calls attention to a potentially or imminently hazardous situation

[SOURCE: ISO 17724:2003, 73]

3.7
CAUTION
signal word (3.6) used to indicate a potentially hazardous situation which, if not avoided, can result in minor or moderate injury

[SOURCE: ISO 17724:2003, 6, modified — "may result" has been changed to "can result"]

3.8
WARNING
signal word (3.6) used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury

[SOURCE: ISO 17724:2003, 84]

3.9
DANGER
signal word (3.6) used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury

[SOURCE: ISO 17724:2003, 18, modified — "may result" has been changed to "will result"]

3.10
hazard
source of potential harm

[SOURCE: ISO 12100:2010, 3.6]

3.11
hazard pictorial
visual description of the *hazard* (3.10) and/or the consequences of not avoiding the hazard and/or visual instructions for hazard avoidance

[SOURCE: ISO 9244:2008, 3.9]

3.12
hazard description panel
area of a *safety label* (3.1) that contains information that indicates a *hazard* (3.10)

3.13
hazard description pictorial
visual description of the *hazard* (3.10) and/or the consequences of not avoiding the hazard

[SOURCE: ISO 9244:2008, 3.8]

3.14
hazard avoidance panel
area of a *safety label* (3.1) that contains information that indicates how to avoid the hazard

3.15
hazard avoidance pictorial
visual instruction for hazard avoidance

[SOURCE: ISO 9244:2008, 3.7]

3.16
prohibition sign
component of a *safety label* (3.1) used to forbid a hazardous action

[SOURCE: ISO 9244:2008, 3.12, modified — The word "machine" was omitted from the definition.]

3.17
safety colour
colour with special properties to which a safety meaning is attributed

[SOURCE: ISO 17080:2005, 2.5]

3.18
safety shape
geometric shape to which a safety meaning is attributed

[SOURCE: ISO 17724:2003, 67]

3.19
graphical symbol
visually perceptible figure with a particular meaning, used to transmit information independently of language

[SOURCE: ISO 7001:2007, 3.1]

3.20
risk
combination of the probability of occurrence of harm and the severity of that harm

[SOURCE: ISO 12100:2010, 3.12]

3.21
message panel
area of a *safety label* (3.1) that contains text describing the hazard, the consequence of exposure to the hazard, and avoidance of the hazard

3.22
panel separation line
line that separates a panel from another panel or from a border

4 Safety labels — Application, presentation and general requirements

4.1 Objectives

4.1.1 The objectives of a safety label are to:

a) alert persons to an existing or potential hazard;

b) identify the hazard;

c) describe the nature of the hazard;

d) explain the consequences of potential injury from the hazard;

e) instruct persons about how to avoid the hazard.

4.1.2 Electronic safety signs are an option on equipment displays. These signs should be used for hazards related to unique configurations, events, or functions of the equipment or system (see Clause 12).

4.1.3 The requirements of 4.3 and 4.4 do not apply to electronic safety signs.

4.2 General

4.2.1 A safety label conveys information about hazards associated with operation of a machine.

4.2.2 The following standard formats for safety labels are described in this document:

— two panel safety label without text (see 5.1);

— two panel safety label with text (see 6.1)

— three panel safety label without text (see 5.1); or

— three panel safety label with text (see 6.1)

NOTE 1 Alternative formats (for example, ISO 3864-2) and/or variations on these standard formats can be used as appropriate.

NOTE 2 When multiple avoidance measures are applicable to a hazard, or when multiple hazards are applicable to an avoidance measure, additional panels can be added.

NOTE 3 Safety labels without text can address requirements for multiple languages and the movement of machines from one country to another.

4.2.3 Either a vertical or a horizontal configuration is acceptable.

4.3 Location

In achieving the objectives of 4.1, it shall be ensured that safety labels

a) are located on the machine in the area near the hazards or in the control area from where the hazards can be prevented,

b) are distinctive on the equipment,

c) are placed in clearly visible locations,

d) are protected to the greatest extent practicable from damage and obliteration, and

e) designed to comply with environmental factors (see 4.4).

4.4 Expected life

A safety label is considered permanent if, when viewed at distances described in 10.2, the label has good colour and legibility after exposure tests for weatherability at a latitude of 25° to 35° north or south on a surface inclined at 45° facing south or north, respectively, for a period of at least two years. Similar weatherability conditions simulated in a laboratory may be accepted.

4.5 Effective use

Use safety labels that are relevant to the hazard. Care shall be taken to prevent excessive use of safety signs on the machine to avoid confusion. Their overuse can reduce their effectiveness.

4.6 Operator's manual information

4.6.1 Safety labels shall be repeated in the operator's manual according to ISO 3600. Safety labels may be used in service and other technical manuals, as needed. Their application in manuals is not subject to the requirement against overuse given in 4.5.

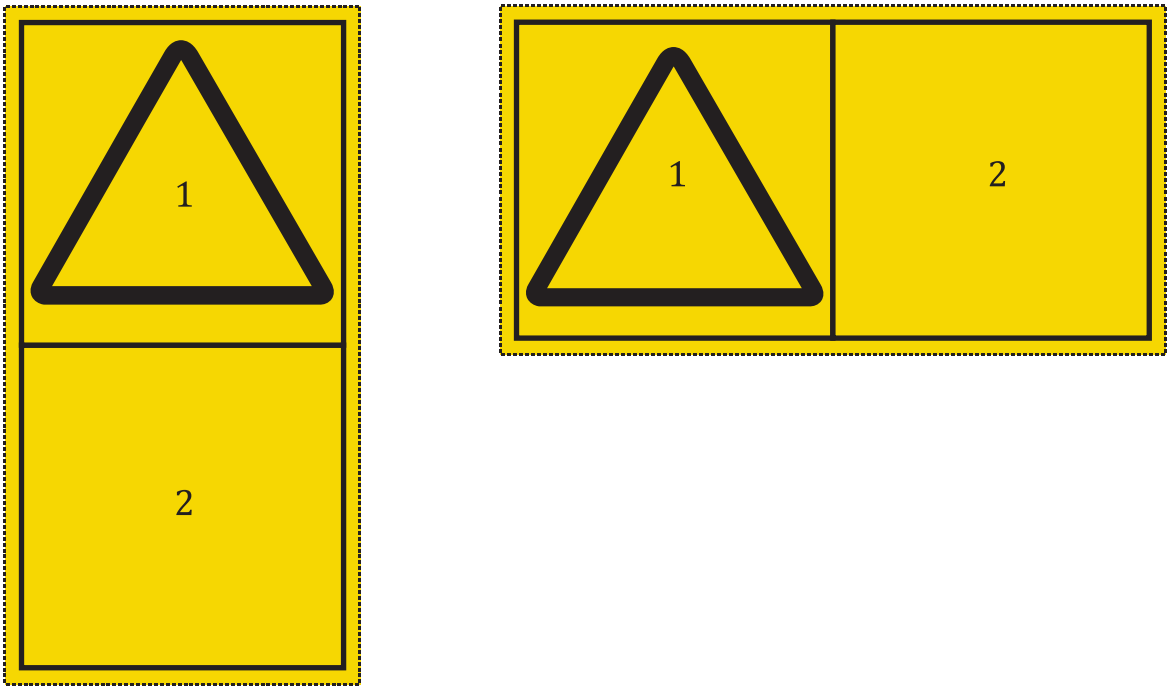
4.6.2 Instructions shall be provided in the operator's manual regarding the maintenance and replacement of safety labels.

5 Safety labels without text (no-text safety labels)

5.1 Two-panel safety labels

A two-panel safety label shall contain a hazard description panel and a hazard avoidance panel. The hazard description panel shall contain either a hazard description pictorial enclosed by the safety alert triangle (see Figure 5), or an exclamation mark enclosed by the safety alert triangle as shown in Figure 8. The hazard avoidance panel shall contain one or more hazard avoidance pictorials.

See Figure 1.



a) Vertical configuration **b) Horizontal configuration**

Key

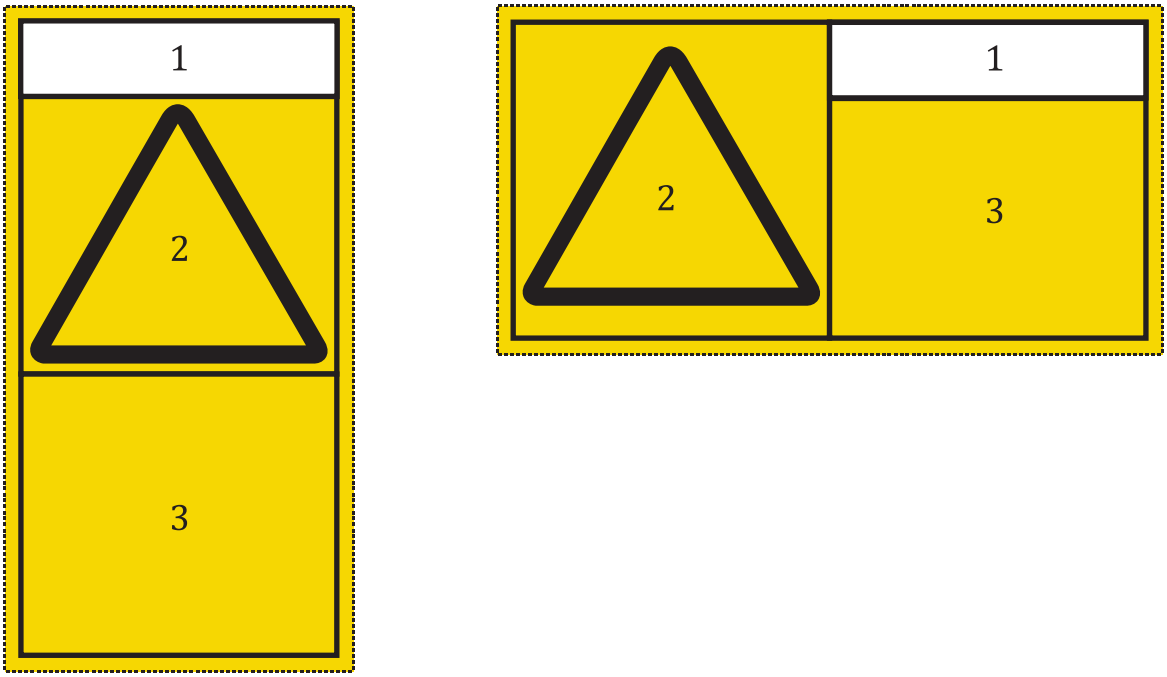
1 hazard description panel
2 hazard avoidance panel

Figure 1 — Two-panel (no-text) safety label

5.2 Three-panel safety labels without text

A three-panel safety label without text shall contain a signal word panel, a hazard description panel and a hazard avoidance panel. The signal word panel shall contain the safety alert symbol and one of the three signal words described in 7.1.2. The hazard description panel shall contain either a hazard description pictorial enclosed by the safety alert triangle (see Figure 5) or an exclamation mark enclosed by the safety alert triangle as shown in Figure 6. The hazard avoidance panel shall contain one or more hazard avoidance pictorials.

See Figure 2.



a) Vertical configuration **b) Horizontal configuration**

Key

1 signal word panel
2 hazard description panel
3 hazard avoidance panel

Figure 2 — Three-panel safety label with signal word without text

5.3 Colour of the hazard description panel

The colour of the hazard description panel shall be yellow.

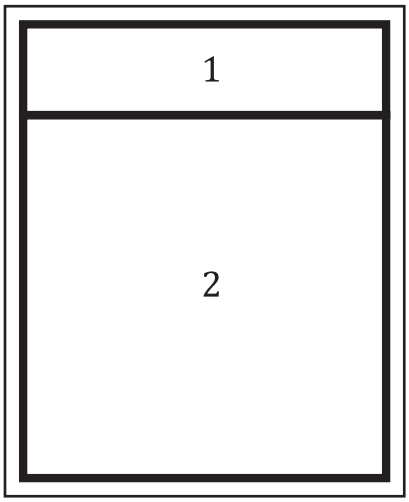
5.4 Colour of the hazard avoidance panel

The colour of the hazard avoidance panel shall be yellow.

6 Safety labels with text (text safety labels)

6.1 Two-panel safety label with text

The signal word panel shall contain the safety alert symbol and one of the three signal words described in 7.1.2. The message panel shall contain text describing the hazard, the consequence of exposure to the hazard, and avoidance of the hazard. See Figure 3.



Key

1 signal word panel

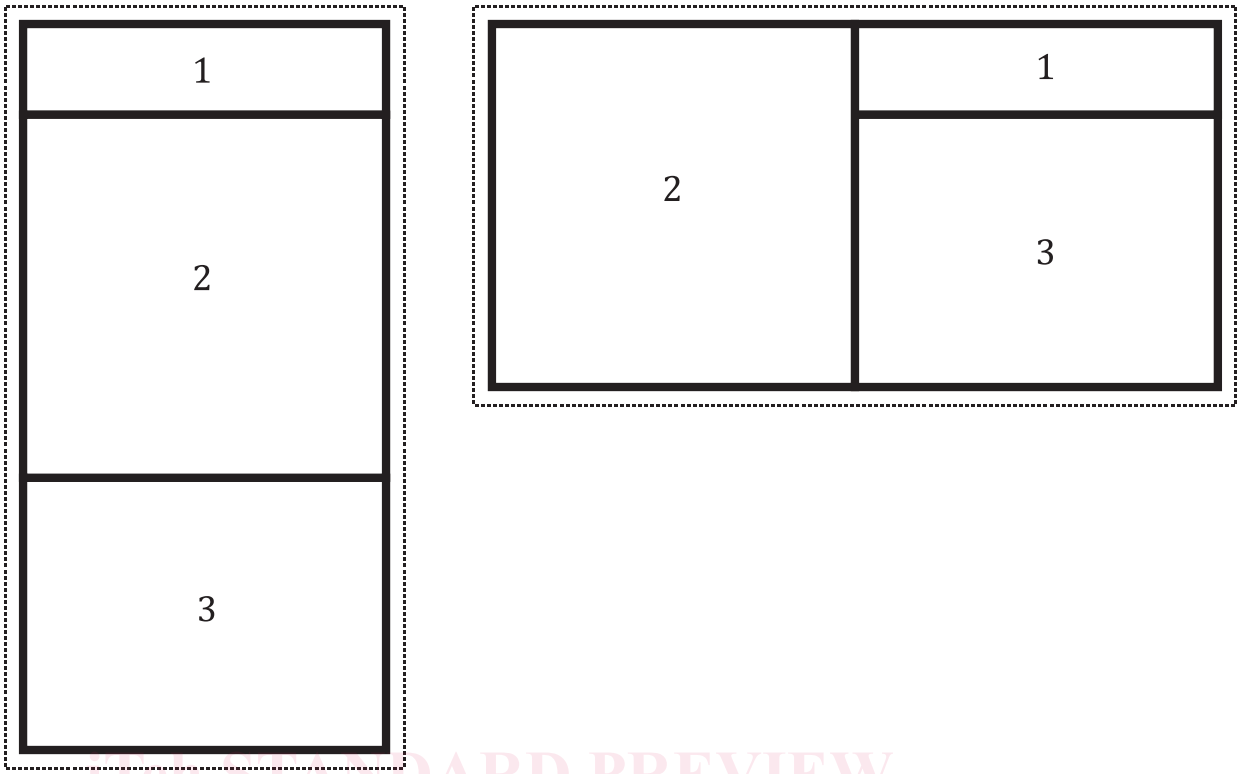
2 message panel

Figure 3 — Two-panel text safety label with text

6.2 Three-panel safety label with text

The signal word panel shall contain the safety alert symbol and one of the three signal words described in 7.1.2. The hazard description panel shall contain a hazard description pictorial or, in some cases, a combination of hazard description pictorial and hazard avoidance pictorial, and may contain text. The hazard avoidance panel shall contain text, or a hazard avoidance pictorial, or a combination of both that describes how to avoid the hazard.

See Figure 4.



a) Vertical configuration **b) Horizontal configuration**

Key

1 signal word panel
2 hazard description panel
3 hazard avoidance panel

Figure 4 — Three-panel safety label with text

6.3 Colour of the hazard description panel

The colour of the hazard description panel shall be white.

6.4 Colours of the hazard avoidance panel

The colour of a hazard avoidance panel that contains a hazard avoidance pictorial shall be white. The colour of a hazard avoidance panel that contains only text shall be white with black text or black with white text.

7 Signal word panel

7.1 General

7.1.1 The signal word panel of a safety label shall contain the safety alert symbol and one of the three signal words described in 7.1.2. The safety alert symbol shall be positioned before the signal word (see signal word panel illustrations in Table 1). The base of the safety alert symbol shall be aligned with the base of the signal word letters and the height of the safety alert symbol shall be equal to or greater than the height of the signal word letters.