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Manually portable agricultural and forestry machines and powered lawn and garden equipment — Design principles for single-panel product safety labels

Tracteurs et matériels agricoles et forestiers portatifs et matériels à moteur pour jardins et pelouses — Principes de conception des étiquettes de sécurité de produit à encadré unique

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Foreword

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ISO 17080 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*.

Introduction

There is need for a standardized system for the communication of specific safety information on products, and ISO 17080 helps meet that need by providing formats for single-panel product safety labels that can be used to fulfil the requirements of both the product and its user.

The formats for single-panel product safety labels presented in this International Standard incorporate the use of geometric shapes, colours and hazard pictorials (graphical symbols) to communicate safety information, efficiently, across language barriers.

Education is an essential part of any system of safety information. Because the amount of information necessary to enable a product to be operated or serviced safely could well be more than is able to be conveyed in a product safety label, collateral material (e.g. product literature, installation manual, operator's manual, service manual, etc.) can be used to supplement product safety labels and provide the user with additional safety information.

Manually portable agricultural and forestry machines and powered lawn and garden equipment — Design principles for single-panel product safety labels

1 Scope

This International Standard establishes principles and gives requirements for the design of single-panel product safety labels intended to be permanently affixed to manually portable agricultural and forestry machines and powered lawn and garden equipment. The main usage of these labels is on machines and equipment where the available space for locating product safety information is very limited, and where multi-panel labels are not necessary for conveying the essential safety messages.

2 Terms and definitions

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

2.1
hazard
source of potential injury to a person

2.2
panel
area of a product safety label that has a distinctive background colour different from adjacent areas of the label, or which is clearly delineated by a border

2.3
multi-panel product safety label
product safety label that uses more than one panel to communicate the safety message

NOTE See ISO 11684.

2.4
product safety label
label on a product that informs the observer of one or more hazards and/or describes the safety precautions or actions required to avoid the hazard(s)

NOTE A product safety label communicates a hazardous situation, a precaution to avoid a hazard, and/or a result of not avoiding a hazard.

2.5
safety colour
colour with special properties to which a safety meaning is attributed

2.6
single-panel product safety label
product safety label that uses one panel to communicate the safety message

3 Safety colours and contrast colours

3.1 Purposes

There are two basic purposes for using specific colours on a product safety label. First, the use of colour rapidly draws attention to the product safety label so that it is easily noticed. Second, safety colour coding serves to identify and give meaning (through training and/or repeated exposure) to the product safety label as a whole as well as to its component parts.

Product safety labels should be conspicuous on the product. This can be achieved by

— ensuring that the safety colour of the geometric shape is sufficiently distinctive on the product surface to which the product safety label is affixed, and/or

— adding a border of a specified contrast colour (see 4.4, 4.5, 4.6), and/or

— enclosing the geometric shape within a larger rectangle of white or — for hazard description (warning) labels — of yellow or white.

3.2 Chromaticity

The chromaticity of the single-panel product safety labels shall be in accordance with Table 1.

Table 1 — Chromaticity of single-panel product safety labels

Colour		Chromaticity coordinates of corner points determining permitted colour area for standard illuminant D65 and CIE 2° standard observer			
		1	2	3	4
Red	x	0,660	0,610	0,700	0,735
	y	0,340	0,340	0,250	0,265
Yellow	x	0,494	0,470	0,493	0,522
	y	0,505	0,480	0,457	0,477
Blue	x	0,140	0,160	0,160	0,140
	y	0,140	0,140	0,160	0,160
White	x	0,305	0,335	0,325	0,295
	y	0,315	0,345	0,355	0,325
Black	x	0,385	0,300	0,260	0,345
	y	0,355	0,270	0,310	0,395

NOTE The values for red, yellow, blue and white correspond to the values for ordinary materials given in ISO 3864-1:2002, Table 3, while those for black correspond to the values in ISO 3864-1:2002, Table 2.

4 Single-panel product safety labels

4.1 Uses of label

A single-panel product safety label can be used alone to describe a hazard, a prohibited action, or a mandatory action. In many cases, both hazard description and hazard avoidance information must be communicated for the same hazard. A multi-panel product safety label (see ISO 11684) is appropriate in such cases. Alternatively, it is possible to use two or more single-panel product safety labels in conjunction with one another. For example, a single-panel hazard description (warning) product safety label may be placed adjacent to a single-panel mandatory action product safety label and/or single-panel prohibited action product safety label.

4.2 Types of label

There are three types of single-panel product safety label:

— hazard description (warning) product safety labels (see 4.4);

— prohibited action product safety labels (see 4.5);

— mandatory action product safety labels (see 4.6).

4.3 Geometric shape and colour of label

Single-panel product safety labels use geometric shapes, colours, and hazard pictorials (graphical symbols) to communicate information about hazards, prohibited actions and mandatory actions. When a geometric shape is used around a hazard pictorial, the corresponding safety colour shall identify the type of safety information to be conveyed by the hazard pictorial. See Table 2.

Table 2 — Geometric shapes and colours of single-panel product safety labels

Geometric shape	Meaning	Safety colour	Contrast colour	Hazard pictorial colour	Description
	Hazard description (Warning)	Yellow	Black	Black	Black hazard pictorial on yellow equilateral triangle enclosed by black triangular band Warns that hazard exists and describes its nature and/or consequences
	Prohibited action	Red	White	Black	Black hazard pictorial on white circle enclosed by red circular band with red diagonal bar Depicts action NOT to be taken or action to be stopped in order to avoid hazard
	Mandatory action	Blue	White	White	White hazard pictorial on blue circle Depicts action to be taken in order to avoid hazard

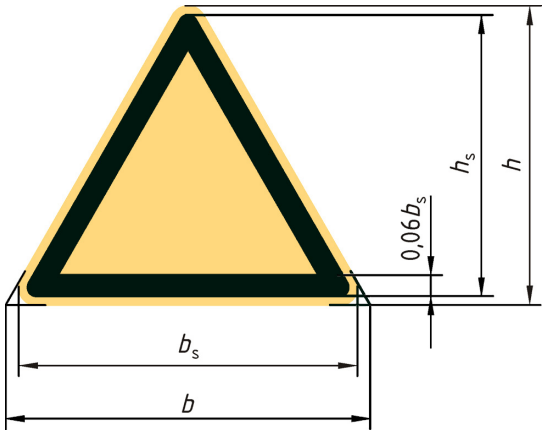
4.4 Single-panel hazard description (warning) product safety label

4.4.1 Application

Hazard description (warning) product safety labels indicate a potential personal injury hazard. Single-panel labels of this type communicate information about a hazard and/or its potential consequences by a combination of geometric shape, colour and hazard-description pictorial.

4.4.2 Format

Single-panel hazard description (warning) product safety labels shall conform to the format as shown in Figure 1. Their geometric shape shall consist of an equilateral triangular band with rounded corners of nominal radius 0,06b. The background colour shall be yellow. The triangular band shall be black. If a border is used, it shall be yellow with a width of 0,025b to 0,05b. The hazard description pictorial representing the hazard shall be black. The label may be placed on a yellow or white background panel.



Colours

Background: yellow

Triangular band: black

Pictorial: black

Border: yellow

Figure 1 — Format of single-panel hazard description (warning) product safety label

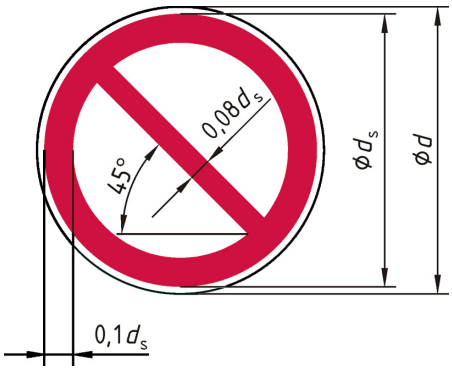
4.5 Single-panel prohibited action product safety label

4.5.1 Application

Prohibited action product safety labels indicate that a specified action is not to be taken or is to be stopped in order avoid a hazard. Single-panel labels of this type communicate information about how a hazard can be avoided by a combination of geometric shape, colour, and hazard avoidance pictorial.

4.5.2 Format

Single-panel prohibited action product safety labels shall conform to the format as shown in Figure 2. Their geometric shape shall consist of a circular band with diagonal bar. The background colour shall be white. The circular band and diagonal bar shall be red. If a border is used, it shall be white with a width of 0,025d to 0,05d. The hazard avoidance pictorial representing the prohibited action shall be black and shall be placed within the red circular band with diagonal bar. The label may be placed on a white background panel.



Colours

Background: white

Circular band: red

Diagonal bar: red

Pictorial: black

Border: white

Figure 2 — Format of single-panel prohibited action product safety label

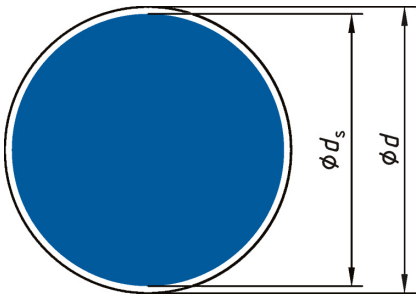
4.6 Single-panel mandatory action product safety label

4.6.1 Application

Mandatory action product safety labels indicate that a specified action is to be taken in order to avoid a hazard. Single-panel labels of this type communicate information about how a hazard can be avoided by a combination of geometric shape, colour, and hazard avoidance pictorial.

4.6.2 Format

Single-panel mandatory action product safety labels shall conform to the format as shown in Figure 3. The geometric shape for single-panel mandatory action product safety labels shall consist of a filled circle. The filled circle colour shall be blue. If a border is used, it shall be white with a width of 0,025d to 0,05d. The hazard avoidance pictorial representing the mandatory action shall be white and shall be placed within the blue circle. The single-panel mandatory action product safety label may be placed on a white background panel.



Colours

Background: blue

Pictorial: white

Border: white

Figure 3 — Format of single-panel mandatory action product safety label

5 Principles and guidelines for design of hazard pictorials

ISO 11684:1995, Annex D, provides principles and guidelines for the graphical design of hazard pictorials, as well as for drawing the human figure and the presentation of other graphical elements used in hazard pictorials. Good, consistent visual design is important for conveying the meaning of both hazard description and hazard avoidance pictorials.

6 Examples of single-panel safety labels

Annex A presents some examples of single-panel product safety labels. Additional single-panel product safety labels might need to be developed for other hazard descriptions, prohibited actions or mandatory actions.

Annex A
(informative)

Examples of single-panel product safety labels

A.1 Examples of hazard description (warning) single-panel product safety labels

	Meaning	Single-panel product safety label	Description of image content
A.1.1	Beware of blade thrust		Continued movement of saw blade after cutting through log
A.1.2	Beware of thrown objects		Multiple objects moving toward human figure
A.1.3	Beware of chain saw kickback and avoid contact with bar tip		Movement of chain saw upward from log

A.2 Examples of prohibited action single-panel product safety labels

	Meaning	Single-panel product safety label	Description of image content
A.2.1	Do not use metal blades		Two types of blades
A.2.2	Do not use saw blades		Saw blade
A.2.3	Do not use chain saw one-handed		Chain saw held in one hand NOTE Normally used in conjunction with A.3.1.

A.3 Examples of mandatory action single-panel product safety labels

	Meaning	Single-panel product safety label	Description of image content
A.3.1	Always use chain saw two-handed		Chain saw held properly in two hands NOTE Normally used in conjunction with A.2.3.
A.3.2	Appropriate ear and eye protection must be worn — Option 1 (side view of human head)		Depiction of human head (side view) wearing ear and eye protective equipment
A.3.3	Appropriate ear and eye protection must be worn — Option 2 (front view of human head)		Depiction of human head (front view) wearing ear and eye protective equipment NOTE Although used for many years, the hazard avoidance pictorial in this single-panel product safety label does not conform to the design principles of ISO 11684:1995, Annex D, for a front-view graphical representation of the human head.
A.3.4	Appropriate ear, eye, and head protection must be worn — Option 1 (side view of human head)		Depiction of human head (side view) wearing ear and eye protective equipment.
A.3.5	Appropriate ear, eye, and head protection must be worn — Option 2 (front view of human head)		Depiction of human head (front view) wearing ear, eye, and head protective equipment. NOTE Although used for many years, the hazard avoidance pictorial in this single-panel product safety label does not conform to the design principles of ISO 11684:1995, Annex D, for a front-view graphical representation of the human head.

Bibliography

[1] ISO 11684:1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles*

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

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

[4] ISO 10526, *CIE standard illuminants for colorimetry*

[5] ISO 10527, *CIE standard colorimetric observers*

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