INTERNATIONAL STANDARD

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Earth-moving machinery — Machine safety labels — General principles

Engins de terrassement — Étiquetage de sécurité de la machine — Principes généraux

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Foreword

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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 9244 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety requirements and human factors*.

This second edition cancels and replaces the first edition (ISO 9244:1995), which has been technically revised.

Introduction

The purpose of this International Standard is to provide, for earth-moving machinery, general principles for the design and application of machine 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 International Standard 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. Machine 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 signs 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.

Earth-moving machinery — Machine safety labels — General principles

1 Scope

This International Standard establishes general principles and gives requirements for the design and application of machine safety labels to be permanently affixed to earth-moving machinery as defined in ISO 6165. It outlines the objectives of signage, describes basic formats, specifies colours and provides guidance on developing the various panels that together constitute a label.

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 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

ISO 6750, *Earth-moving machinery — Operator's manual — Content and format*

3 Terms and definitions

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

3.1
border
area between the edge of a sign and the panel

3.2
CAUTION
signal word used to indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

[ISO 3864-2]

3.3
combination machine safety label
combination of machine safety sign and/or supplementary safety information and/or hazard severity panel on one rectangular label

NOTE A combination machine safety label conveys one safety message.

NOTE Adapted from ISO 3864-2:2004, definition 3.2.

3.4
DANGER
signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury

[ISO 3864-2]

3.5
graphical symbol
visually perceptible figure with a particular meaning, used to transmit information independently of language

3.6
hazard
source of potential harm

[ISO 3864-2]

3.7
hazard avoidance pictorial
visual instruction for hazard avoidance

3.8
hazard description pictorial
visual description of the hazard and/or the consequences of not avoiding the hazard

3.9
hazard pictorial
visual description of the hazard, the consequences of not avoiding the hazard, and/or instructions for hazard avoidance

3.10
hazard severity panel
area of a combination or multiple machine safety label that communicates the category of risk associated with a hazard

NOTE 1 Adapted from ISO 3864-2:2004, definition 3.2.

3.11
label
sign carrier made from flexible material

3.12
machine safety label
label on a machine 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 Adapted from ISO 17724:2003, definition 58.

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

3.13
multiple machine safety label
machine 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

NOTE 1 Adapted from ISO 3864-2:2004, definition 3.8.

3.14
panel
component of a machine safety label that is clearly delineated by a line, border or margin

3.15
prohibition sign
component of a machine safety label used to forbid a hazardous action

3.16
risk
combination of the probability of occurrence of harm and the severity of that harm

[ISO/IEC Guide 51]

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

[ISO 17724]

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

[ISO 7010]

3.19
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

NOTE Adapted from ISO 3864-1:2002, definition 3.14.

3.20
signal word
word that calls attention to a machine safety label and designates a category of risk

NOTE Adapted from ISO 3864-2:2004, definition 3.14.

3.21
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.

[ISO 3864-2]

3.22
WARNING
signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury

[ISO 3864-2]

4 Machine safety labels — Application, presentation and general requirements

4.1 Objectives

Machine safety labels are used

a) to alert persons to a hazard,

b) to describe the nature of the hazard,

c) to explain the consequences of potential injury from the hazard, and

d) to instruct persons how to avoid the hazard.

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

4.2 Location

Machine 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) have a reasonably long life expectancy considering environmental factors.

4.3 Effective use

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

4.4 Operator's manuals

Machine safety labels shall be repeated in operator's manuals according to ISO 6750 and in service and other technical manuals. Their application in manuals is not subject to the requirement against overuse given in 4.3.

4.5 Formats

A machine safety label shall be composed of a border surrounding two or more rectangular panels that convey information about hazards associated with the operation of a machine. Either a vertical or a horizontal configuration is acceptable. Final choice of format and configuration should be determined by the effective use of the available space. Machine safety labels may have either two or three panels, as shown in Figures 1 and 2. When more than one avoidance measure is applicable to a hazard, or when more than one hazard is applicable to an avoidance measure, additional panels may be added (multiple machine safety label). See 4.7.6.

4.5.1 Machine safety labels with signal word

Machine safety labels including a signal word (see 4.6.2) shall conform to one or the other of the following two basic types.

a) Two-panel combination machine safety label:

   1) hazard severity panel;

   2) supplementary safety information panel.

   See Figure 1.

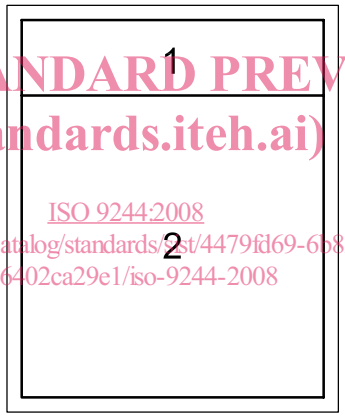
b) Three-panel combination machine safety label:

   1) hazard severity panel;

   2) safety sign;

   3) supplementary safety information panel

   See Figure 2.



Key

1 hazard severity panel

2 supplementary safety information panel

Figure 1 — Two-panel combination machine safety label — With signal word