INTERNATIONAL STANDARD

ISO 20712-2

First edition
2007-09-15

Water safety signs and beach safety flags —

Part 2: Specifications for beach safety flags — Colour, shape, meaning and performance

Signaux de sécurité relatifs à l'eau et drapeaux de sécurité pour les plages —

Partie 2: Spécifications des drapeaux de sécurité pour les plages — Couleur, forme, signification et performance

Reference number
ISO 20712-2:2007(E)

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Published in Switzerland

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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 20712-2 was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 2, *Safety identification, signs, shapes, symbols and colours*.

ISO 20712 consists of the following parts, under the general title *Water safety signs and beach safety flags*:

— *Part 1: Specifications for water safety signs used in workplaces and public areas*

— *Part 2: Specifications for beach safety flags — Colour, shape, meaning and performance*

— *Part 3: Guidance for use*

Introduction

There is a need to standardize a system of giving safety information that relies as little as possible on the use of words to achieve understanding.

Continued growth in international trade, travel and mobility of labour requires a common method of communicating safety information.

Lack of standardization may lead to confusion and perhaps accidents.

The use of standardized beach safety flags does not replace proper work methods, instructions and accident prevention training and/or measures. Education is an essential part of any system that provides safety information.

NOTE Some countries' statutory regulations may differ in some respects from those given in this part of ISO 20712.

Water safety signs and beach safety flags —

Part 2:
Specifications for beach safety flags — Colour, shape, meaning and performance

IMPORTANT — The colours represented in the electronic file of this International Standard can be neither viewed on screen nor printed as true representations. Although the copies of this International Standard printed by ISO have been produced to correspond (with an acceptable tolerance as judged by the naked eye) to the requirements of this part of ISO 20712, it is not intended that these printed copies be used for colour matching.

1 Scope

This part of ISO 20712 specifies requirements for the shape and colour of beach safety flags for the management of activities on coastal and inland beaches, to be used for giving information on wind and water conditions and other hazardous conditions, and to indicate the location of swimming and other aquatic activity zones extending from the beach into the water. It also specifies the colorimetric and photometric properties and the physical properties, including strength and colour fastness, of the materials from which beach safety flags are to be made.

It is not applicable to flags for use on firing ranges or to flags for use to indicate water quality or to signalling used for maritime traffic.

NOTE The illustrations in this part of ISO 20712 are as accurate as possible within the limitations of the printing process.

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 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 105-B03, *Textiles — Tests for colour fastness — Part B03: Colour fastness to weathering: Outdoor exposure*

ISO 105-E01, *Textiles — Tests for colour fastness — Part E01: Colour fastness to water*

ISO 105-E02, *Textiles — Tests for colour fastness — Part E02: Colour fastness to sea water*

ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 2076, *Textiles — Man-made fibres — Generic names*

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

ISO/CIE 10527, *CIE standard colorimetric observers*

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13938-1, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension*

ISO 17724, *Graphical symbols — Vocabulary*

EN 1049-2:1993, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 2: Determination of number of threads per unit length*

EN 12127, *Textiles — Fabrics — Determination of mass per unit area using small samples*

CIE 15, *Colorimetry*

BS 2F 127:1991*, Specification for nylon fabrics suitable for coating with natural or synthetic elastomers for aerospace purposes*

BS 5441, *Methods of test for knitted fabrics*

3 Terms and definitions

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

3.1
beach
area forming a shoreline or sloping bank at the edge of the sea or a river estuary or lake

3.2
beach safety flag
material that gives a particular safety message by means of a combination of one or more colours and a geometric shape, and is attached by one end to a pole or rope

NOTE A flag can also have additional support, e.g. a horizontal support.

4 Beach safety flags

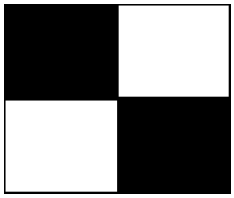
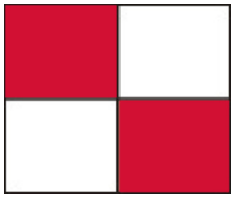
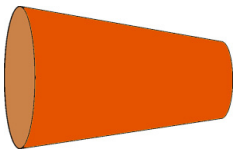
4.1 General

Beach safety flags shall be made of material conforming to Clause 5.

4.2 Meaning, function, shape and colour of beach safety flags

The meaning, function, colour and shape of beach safety flags shall be as specified in Table 1.

Table 1 — Meaning, function, shape and colour of beach safety flags

Beach safety flag	Meaning, function, shape and colour	
 **BF.01**	**Meaning**	Dangerous conditions.
	Function	To signify a severe hazard: water conditions unsafe for swimming and other water activities. People should not enter the water.
	Shape and colour	Rectangle, red.
 **BF.02**	**Meaning**	General warning flag.
	Function	To signify a general warning of a hazard which requires a supplementary sign giving further information.
	Shape and colour	Rectangle, yellow.
 **BF.03**	**Meaning**	Lifeguard-patrolled swimming and bodyboarding zone or lifeguard on duty.
	Function	Pair of flags to signify a swimming and bodyboarding zone which has a lifeguard patrol, or a single flag to signify that a lifeguard is on duty.
	Shape and colour	Rectangle, red and yellow. Divided horizontally into two equal halves; red half at the top.
 **BF.04**	**Meaning**	Surfboard and other water craft zone or boundary.
	Function	To signify a zone, or the boundary of a zone, designated for use of surfboards and other water craft.
	Shape and colour	Rectangle, black and white. Divided into four equal rectangles, two black and two white. Upper black rectangle at the pole side.
 **BF.05**	**Meaning**	Emergency evacuation.
	Function	To signify that people should leave the water because of an emergency.
	Shape and colour	Rectangle, red and white. Divided into four equal rectangles, two red and two white. Upper red rectangle at the pole side.
 **BF.06**	**Meaning**	No inflatables to be used on the water.
	Function	To signify the danger of using inflatables in windy or otherwise unsafe water conditions.
	Shape and colour	Truncated cone, orange.

4.3 Dimensions of beach safety flags

4.3.1 Rectangular flags

For rectangular flags, the minimum dimensions shall be 750 mm × 900 mm and the width shall always exceed the height by a minimum of 20 % of the height and by a maximum of 35 % of the height.

4.3.2 Conical flags

Conical flags shall be in the form of a truncated cone, incorporating a rigid ring at the large end, which shall have a minimum length of 1 500 mm, and a minimum diameter of 250 mm at the small end and 500 mm at the large end. The ratio of large-end diameter to small-end diameter to length shall be 2:1:6.

5 Beach safety flag material

5.1 General

Rectangular flags shall be made of polyester as defined in ISO 2076, and shall be woven or knitted.

NOTE Flags made of knitted polyester are lighter so they dry more quickly and fly better in light winds. However, woven polyester is more durable.

For conical flags, the material shall be nylon conforming to BS 2F 127:1991, Fabric 7.

5.2 Colorimetric and photometric properties of the material

When the material is tested in accordance with Clause 6, the chromaticity coordinates of each colour shall fall within the relevant colour area specified in Table 2. The luminance factor of each colour shall be as specified in Table 2.

NOTE Practical information on colours is given in Annex A.

Table 2 — Chromaticity coordinates and luminance factor for beach safety flag materials

Colour		Chromaticity coordinates of comer points determining the permitted colour area: standard illuminant D65 CIE 2° standard observer				Luminance factor
		1	2	3	4	
Red	x	0,555	0,668	0,710	0,530	$\geqslant$ 0,07
	y	0,345	0,332	0,290	0,315	
Orange	x	0,500	0,584	0,640	0,533	$\geqslant$ 0,18
	y	0,390	0,416	0,360	0,350	
Yellow	x	0,424	0,465	0,522	0,460	$\geqslant$ 0,45
	y	0,479	0,534	0,477	0,430	
White	x	0,385	0,300	0,260	0,345	$\geqslant$ 0,70
	y	0,355	0,270	0,310	0,395	
Black	x	0,385	0,300	0,260	0,345	$\leqslant$ 0,03
	y	0,355	0,270	0,310	0,395	

5.3 Physical properties of polyester material

5.3.1 Mass per unit area

When the material is tested in accordance with EN 12127, woven polyester shall have a mass per unit area of (155 ± 8) g/m^2 and knitted polyester shall have a mass per unit area of (115 ± 6) g/m^2.

5.3.2 Threads per unit length in woven polyester

When measured in accordance with EN 1049-2:1993, method B, the mean number of warp ends per centimetre and the mean number of weft picks per centimetre shall be 13 and 12, respectively.

5.3.3 Numbers of wales and courses in knitted polyester

When measured in accordance with BS 5441, the number of wales per centimetre and the number of courses per centimetre shall be 11 and 18, respectively.

5.4 Colour fastness of material

5.4.1 Colour fastness to light

When the material is tested in accordance with ISO 105-B02, the colour fastness rating shall be at least 6.

5.4.2 Colour fastness to fresh water

When the material is tested in accordance with ISO 105-E01, the colour change, assessed using the grey scale specified in ISO 105-A02, shall correspond to a colour fastness rating of not less than 4-5 and the staining of adjacent fabrics, assessed using the grey scale specified in ISO 105-A03, shall correspond to a colour fastness rating of not less than 4-5.

5.4.3 Colour fastness to salt water

When the material is tested in accordance with ISO 105-E02, the colour change, assessed using the grey scale specified in ISO 105-A02, shall correspond to a colour fastness rating of not less than 4-5 and the staining of adjacent fabrics, assessed using the grey scale specified in ISO 105-A03, shall correspond to a colour fastness rating of not less than 4-5.

5.4.4 Colour fastness to wet and dry rubbing

When the material is tested in accordance with ISO 105-X12, the staining of the rubbing cloths after dry and after wet rubbing, assessed using the grey scale specified in ISO 105-A03, shall correspond to a colour fastness rating of 5.

5.4.5 Colour fastness to weathering

When the material is tested in accordance with ISO 105-B03, the colour fastness rating shall be at least 6.

5.5 Strength

5.5.1 Tensile strength of woven materials

When tested in accordance with ISO 13934-1, the maximum forces shall be ⩾ 1 050 N and ⩾ 825 N in the warp direction and in the weft direction, respectively.

5.5.2 Bursting strength of knitted materials

When tested in accordance with ISO 13938-1, using a test area of 7,3 cm^2 (i.e. 30,5 mm in diameter), the minimum bursting strength shall be $\geqslant$ 800 kPa.

6 Measurement of chromaticity coordinates and luminance factor

Measurements of chromaticity coordinates and luminance factor shall be made in accordance with CIE 15. The measurements shall be made on a single layer of material backed by a white card with a reflectance greater than 0,75. The material shall be illuminated by standard illuminant D65 as specified in ISO/CIE 10526, using a spectrophotometer with de: 8° geometry incorporating a gloss trap to exclude the specular component of the reflection. The spectrophotometer used shall be designed to measure reflecting materials, with the data processed to yield CIE x, y, Y data for standard illuminant D65 and the CIE 1931 2° standard observer as specified in ISO/CIE 10527.

NOTE 1 The luminance factor is obtained from Y/100.

NOTE 2 The CIE 1931 standard colorimetric observer uses observing fields of 2° angular subtense and is therefore referred to as the CIE 2° standard colorimetric observer.

NOTE 3 Standard illuminant D65 represents average daylight.

Annex A
(informative)

Examples of colours

Colours are specified in Table 2 by chromaticity coordinates and luminance factor. However, manufacturers of beach safety flag materials might need guidelines concerning what the respective colours look like. For this purpose, and not for colour matching, examples of colours are given in Table A.1.

Table A.1 — Examples of colours which fall within the colour areas specified in Table 2

Colour	Pantone [a] colour reference
Red	Red 032C 1788C 1795C 185C **186C** 485C
Orange	021C 1505C 151C 158C 1585C 1595C 165C **166C** 1645C 1655C 1665C 171C 172C 173C
Yellow	Yellow C Yellow 012C 107C 108C **109C** 110C 116C 1235C 124C 130C **136C**
NOTE Pantone colour references in **bold** are preferred colours.	
[a] Pantone ® is a trademark owned by Pantone Inc., 590 Commerce Blvd, Carlstadt, NJ 07072-3098, USA. This information is given for the convenience of users of this part of ISO 20712 and does not constitute an endorsement by ISO of the products named.	

To identify a colour reference in another colour classification system, that colour reference should be tested in accordance with Clause 6 and will have to meet the specifications in Table 2.

ICS 01.080.10

Price based on 7 pages