INTERNATIONAL STANDARD

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Sports and recreational equipment — Fabrics for awnings and camping tents — Specification

Matériel de sports et d'activités de plein air — Étoffes pour auvents et tentes de camping — Spécifications

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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 10966 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 2, *Camping tents*.

This second edition cancels and replaces the first edition (ISO 10966:1994) which has been technically revised.

Sports and recreational equipment — Fabrics for awnings and camping tents — Specification

1 Scope

This International Standard specifies the most important material characteristics for woven fabrics for awnings and camping tents. It can also be applied to other types of fabric.

To meet the needs arising from different climatic conditions, different national habits in tent usage or different durability-expectations of the customer, the material requirements are split into two levels: A and B. Level A requirements apply to awning and camping tent fabrics intended for use where severe strain is caused by wind, weather or long-term use; level B requirements are lower than level A and apply to fabrics intended for less severe use.

This International Standard follows the awning and camping tent classification given in ISO 8937 and ISO 5912, as follows:

awnings:

— type SN: snow awning;

— type R: residential awning;

— type T: touring awning;

camping tents:

— type S: sleeping tent:

  — class st: standard-weight tents;

  — class l: light-weight tents;

— type T: touring tent;

— type R: residential tent.

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-B02:1994, *Textile — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 105-B04:1994, *Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test*

ISO 105-E01:1994, *Textiles — Tests for colour fastness — Part E01: Colour fastness to water*

ISO 105-X12:2001, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 811:1981, *Textile fabrics — Determination of resistance to water penetration — Hydrostatic pressure test*

ISO 1420, *Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water*

ISO 1421:1998, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 4675:1990, *Rubber- or plastics-coated fabrics — Low-temperature bend test*

ISO 4892-2:—[1)] , *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc sources*

ISO 5912:2003, *Camping tents*

ISO 6940:2004, *Textile fabrics — Burning behaviour — Determination of ease of ignition of vertically oriented specimens*

ISO 7152:1997, *Camping tents and caravan awnings — Vocabulary and list of equivalent terms*

ISO 7771:1985, *Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion*

ISO 8937:2000, *Caravan awnings — Functional requirements and test methods*

ISO 13934-1:1999, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13937-1:2000, *Textiles — Tear properties of fabrics — Part 1: Determination of tear force using ballistic pendulum method (Elmendorf)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7152 and the following apply.

3.1
outer fabric
fabric for awnings and camping tents directly exposed to the influence of weather in practical use

3.2
inner fabric
fabric for awnings and camping tents not directly exposed to the influence of weather in practical use (i.e. protected by outer fabrics)

3.3
coated fabric
material treated with film-generating substances in order to permanently close the gaps between yarns or fibres thereby increasing the resistance to penetration by water

1) To be published. (Revision of ISO 4892-2:1994)

4 Minimum requirements and test methods

4.1 General

The minimum requirements and test methods are specified in 4.2 to 4.8.

Substances with an amount of bioavailability sufficient to cause damage to health under intended conditions of use are not allowed.

4.2 Roofs for awnings and camping tents types R and T made of coated fabrics

Table 1 — Minimum requirements for roofs, coated

Property	Awning				Camping tent				Direction	Test method
	Level A		Level B		Level A		Level B			
	type [a]		type [a]		type [a]		type [a]			
	R	T	R	T	R	T	R	T		
Breaking strength (daN)	120	100	100	85	120	100	100	85	warp and weft	ISO 1421
Tear resistance (daN)	1,5	1,5	1,2	1,2	1,5	1,5	1,2	1,2	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	150	150	80	80	150	150	80	80		ISO 1420

[a] For type SN, see 4.6; for type S, see 4.7 and 4.8.

4.3 Roofs for awnings and camping tents types R and T made of uncoated fabrics

Table 2 — Minimum requirements for roofs, uncoated

Property	Awning				Camping tent				Direction	Test method
	Level A		Level B		Level A		Level B			
	type [a]		type [a]		type [a]		type [a]			
	R	T	R	T	R	T	R	T		
Breaking strength (daN)	— [b]	85	70	70	85	85	70	70	warp and weft	ISO 13934-1
Tear resistance (daN)	— [b]	1,5	1,5	1,5	1,5	1,5	1,5	1,5	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	— [b]	50	40	30	50	50	40	30		ISO 811

[a] For type SN, see 4.6; for type S, see 4.7 and 4.8.

[b] Uncoated fabrics for roofs of awnings type R are not suitable for this application.

4.4 Walls/outer tents of awnings and camping tents made of coated fabrics

Table 3 — Minimum requirements for walls/outer tents, coated

Property	Awning				Camping tent				Direction	Test method
	Level A		Level B		Level A		Level B			
	type [a]		type [a]		type [a]		type [a]			
	R	T	R	T	R	T	R	T		
Breaking strength (daN)	100	100	85	80	85	80	85	80	warp and weft	ISO 1421
Tear resistance (daN)	1,2	1,2	1,0	1,0	1,2	1,2	1,0	1,0	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	100	150	40	40	150	150	40	40		ISO 1420

[a] For type SN, see 4.6; for type S, see 4.7 and 4.8.

4.5 Walls/outer tents of awnings and camping tents made of uncoated fabrics

Table 4 — Minimum requirements for walls/outer tents, uncoated

Property	Awning				Camping tent				Direction	Test method
	Level A		Level B		Level A		Level B			
	type		type		type		type			
	R	T	R	T	R	T	R	T		
Breaking strength (daN)	65	60	60	50	65	60	60	50	warp and weft	ISO 13934-1
Tear resistance (daN)	1,8	1,8	1,6	1,6	1,2	1,2	1,0	1,0	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	25	25	25	20	25	25	25	20		ISO 811

4.6 Roofs and walls of awnings, type SN

Table 5 — Minimum requirements for roofs and walls of awnings, type SN

Property	Roofs		Walls		Direction	Test method
	Level A	Level B	Level A	Level B		
Breaking strength (daN)	120	100	100	85	warp and weft	ISO 1421 (coated fabrics) ISO 13934-1 (uncoated fabrics)
Tear resistance (daN)	4,0	3,0	3,0	2,0	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	150	80	150	40		ISO 1420 (coated fabrics) ISO 811 (uncoated fabrics)

4.7 Outer fabrics of camping tents, type S, coated

Table 6 — Minimum requirements for outer fabrics of camping tents, type S, coated

Property	Class st		Class I		Direction	Test method
	Level A	Level B	Level A	Level B		
Breaking strength (daN)	65	50	65	40	warp and weft	ISO 1421
Tear resistance (daN)	1,0	0,5	1,0	0,5	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	150	80	150	80		ISO 1420

4.8 Outer fabrics of camping tents, type S, uncoated

Table 7 — Minimum requirements for outer fabrics of camping tents, type S, uncoated

Property	Class st		Class I		Direction	Test method
	Level A	Level B	Level A	Level B		
Breaking strength (daN)	60	50	60	40	warp and weft	ISO 13934-1
Tear resistance (daN)	1,5	1,2	1,0	0,8	warp and weft	ISO 13937-1
Resistance to penetration by water (hPa)	30	22	30	25		ISO 811

4.9 Resistance to cold cracking

When tested in accordance with ISO 4675, for all coated fabrics, only cracks of grade A according to 9.1 of ISO 4675:1990 are permitted. The test temperature shall be –20 °C for snow awnings (type SN) and –10 °C for materials of all other types of tent.

4.10 Dimensional stability

When tested in accordance with ISO 7771, using a cycle of 2 h, the dimensional change shall be not more than ± 3 %.

4.11 Colour fastness

The fabrics shall exhibit the following minimum colour fastness ratings:

a) Outer fabrics for all types of awnings and camping tents

— fastness to light 5 (when tested in accordance with ISO 105-B02)

— fastness to weathering 4 to 5 (when tested in accordance with ISO 105-B04)

— fastness to water 4 (when tested in accordance with ISO 105-E01)

— fastness to wet rubbing 3 (when tested in accordance with ISO 105-X12)

b) Inner fabrics

— fastness to water 4 (when tested in accordance with ISO 105-E01)

— fastness to wet rubbing 3 (when tested in accordance with ISO 105-X12)

4.12 Breaking strength of inner fabrics

Inner fabrics for all types of tent shall have a minimum breaking strength of 30 daN for warp and weft when tested in accordance with ISO 13934-1 or ISO 1421.

4.13 Weatherability

All outer fabrics (roof, wall, etc.) shall provide a minimum resistance to natural sunlight regardless of to which type of tent they belong. This requirement is deemed to be met if, after artificial weathering in accordance with ISO 4892-2 and applying the test parameters specified in Table 8, the breaking strength and the resistance to penetration by rain is not more than 30 % below the minimum value applicable to the type and part of the tent specified in Tables 1 to 7.

Table 8 — Test parameters for ISO 4892-2

Parameter	Requirement
Time of exposure	Level A: 180 h Level B: 120 h
Light source	Xenon arc lamp (global radiation)
Black panel temperature	(55 ± 3) °C
Relative humidity	(65 ± 5) %
Spraying/drying cycle	18 min/102 min
Dimension of specimen	Compatible with the apparatus and the test specimens for breaking strength and resistance to penetration by water
Number of specimens	At least 3
Expression of results	Mean value of three trials

4.14 Inflammability

This International Standard does not specify a general minimum requirement concerning flame retardation of fabrics for awnings and camping tents. If the fabric of an awning or camping tent is claimed to have a flame retardant performance, it shall not ignite when tested in accordance with ISO 6940 and exposed to a test flame for 10 s, in the new condition and also after artificial weathering in accordance with ISO 4892-2.

5 Marking

All fabrics claimed to comply with the requirements of this International Standard shall be provided with the following information:

a) number and date of this International Standard, i.e. ISO 10966:2005;

b) performance of the fabric, i.e. its classification to level A or B, to be marked in accordance with 7.2 of ISO 5912:2003.

For that purpose in the column “material” of these labels, the following presentation shall be used:

English:	Material performance	A (high)	
		B (normal)	
French:	Caractéristiques du matériau	A (élevé)	
		B (normal)	
German:	Beanspruchbarkeit der Zeltstoffe	A (hoch)	
		B (normal)	

NOTE If other languages are used, the marking shall be made in the same manner and wording in language.

c) optionally, flame retardant performance for fabrics complying with the requirements of 4.14.

ICS 59.080.30; 97.200.30

Price based on 7 pages