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STANDARD

ISO
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**Textiles — Fabrics for awnings and
camping tents — Specification**

iTeh STANDARD PREVIEW
Textiles — Tissus pour auvents et tentes de camping — Spécifications
(standards.iteh.ai)

ISO 10966:1994

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Reference number
ISO 10966:1994(E)

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.

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.

International Standard ISO 10966 was prepared by Technical Committee ISO/TC 38, *Textiles*.

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Textiles — 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 fabrics.

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 severe and/or long-term use; level B requirements are lower than level A and apply to fabrics intended for less severe use.

NOTE 1 This International Standard follows the awning and camping test classification given in ISO 8937 and ISO 5912, respectively:

- a) Awnings: [ISO 10966:1994](https://standards.iteh.ai/catalog/standards/sist/2ac49948-6500-498c-92d1-e2033cf493cf/iso-10966-1994)
<https://standards.iteh.ai/catalog/standards/sist/2ac49948-6500-498c-92d1-e2033cf493cf/iso-10966-1994>
- snow awning (type SN);
 - residential awning (type R);
 - touring awning (type T).
- b) Camping tents:
- sleeping tent (type S);
 - 1) class st: standard-weight tent,
 - 2) class l: lightweight tent.
 - touring tent (type T);
 - residential tent (type R).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 105-B02:—¹⁾, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test.*

ISO 105-B04:—²⁾, *Textiles — Tests for colour fastness — Part B04: Colour fastness to weathering: Xenon arc.*

ISO 105-E01:—³⁾, *Textiles — Tests for colour fastness — Part E01: Colour fastness to water.*

ISO 105-X12:1993, *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 1420:1987, *Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water.*

ISO 1421:1977, *Fabrics coated with rubber or plastics — Determination of breaking strength and elongation at break.*

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

ISO 4892-2:1994, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc sources.*

ISO 5081:1977, *Textiles — Woven fabrics — Determination of breaking strength and elongation (Strip method).*

ISO 5912:1993, *Camping tents.*

ISO 6940:1984, *Textile fabrics — Burning behaviour — Determination of ease of ignition of vertically oriented specimens.*

ISO 7152:—⁴⁾, *Camping tents and caravan awnings — Vocabulary.*

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

ISO 8937:1991, *Caravan awnings — Functional requirements and test methods.*

ISO 9073-4:1989, *Textiles — Test methods for nonwovens — Part 4: Determination of tear resistance.*

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 7152 and the following definitions apply.

3.1 outer fabric: Fabric for awnings and camping tents which is directly exposed to the weather during practical use.

3.2 inner fabric: Fabric for awnings and camping tents which is not directly exposed to the weather during 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 its resistance to penetration by water.

1) To be published. (Revision of ISO 105-B02:1988)

2) To be published. (Revision of ISO 105-B04:1988)

3) To be published. (Revision of ISO 105-E01:1989)

4) To be published. (Revision of ISO 7152:1984)

4 Minimum requirements and test methods

4.1 Roofs of awnings and camping tents type R and type 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 ¹⁾		type ¹⁾		type ¹⁾		type ¹⁾			
	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)	8	6	4,5	4	8	6	4,5	4	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	150	150	80	80	150	150	80	80		ISO 1420, Method A1

1) For type SN see 4.5; for type S see 4.6 and 4.7.

4.2 Roofs of awnings and camping tents type R and type 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 ¹⁾		type ¹⁾		type ¹⁾		type ¹⁾			
	R	T	R	T	R	T	R	T		
Breaking strength (daN)	—	85	70	70	85	85	70	70	warp and weft	ISO 5081
Tear resistance (daN)	—	6	4	4	6	6	4	4	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	—	50	40	30	50	50	40	30		ISO 811

1) For type SN see 4.5; for type S see 4.6 and 4.7.

4.3 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		type		type		type			
	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)	6	6	4,5	4	6	6	4,5	4	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	150	150	40	40	150	150	40	40		ISO 1420, Method A1

4.4 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 5081
Tear resistance (daN)	4	4	4	4	4	4	4	4	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	25	25	25	20	25	25	25	20		ISO 811

4.5 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 5081 (uncoated fabrics)
Tear resistance (daN)	8	4	6	4	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	150	80	150	40		ISO 1420, Method A1 (coated fabrics) ISO 811 (uncoated fabrics)

4.6 Outer fabrics of camping tents, type S, coated

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

Property	Class st ¹⁾		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 (coated fabrics)
Tear resistance (daN)	4	3	4	3	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	150	80	150	80		ISO 1420, Method A1

1) Not applicable for group tents (more than 6 occupants).

4.7 Outer fabrics of camping tents, type S, uncoated

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

Property	Class st ¹⁾		Class I		Direction	Test method
	Level A	Level B	Level A	Level B		
Breaking strength (daN)	60	50	60	40	warp and weft	ISO 5081
Tear resistance (daN)	4	3	4	3	warp and weft	ISO 9073-4
Resistance to penetration by water (hPa)	30	22	30	25		ISO 811
1) Not applicable for group tents (more than 6 occupants).						

4.8 Resistance against cold crack

When tested according to ISO 4675, for all coated fabrics only cracks of grade A according to ISO 4675:1990, subclause 9.1 are allowed. The test temperature shall be – 20 °C for snow tent materials and – 10 °C for materials of all other types of tents.

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4.9 Dimensional stability

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When tested according to ISO 7771 using a cycle of 2 h, the dimensional change shall be not more than $\pm 3\%$.

4.10 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: 6 (when tested in accordance with ISO 105-B02);
 - fastness to weathering: 4-5 (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).

4.11 Breaking strength of inner fabrics

Inner tent fabrics for all types of tents shall have a minimum breaking strength of 30 daN for warp and weft when tested in accordance with ISO 5081 or ISO 1421.

4.12 Weatherability

All outer fabrics (roof, walls, etc.) shall provide a minimum resistance to natural sunlight regardless of the type of tent or awning concerned. 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 water 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 — Parameters for testing in accordance with 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
Dimensions of specimen	Compatible with the apparatus and the specimen size required for tests for breaking strength and resistance to penetration by water
Number of specimens	At least three
Expression of results	Mean value of at least three trials

4.13 Flammability

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.

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 10966:1994;

- b) performance of the fabric, i.e. its classification to level A or B, marked on the label in accordance with ISO 5912:1993, subclause 9.2;

For that purpose in the column "material" of these labels, the following presentation shall be used, in which the relevant box is marked:

English:	Material performance	A (High)	
		B (Normal)	

French:	Caractéristique du matériel	A (Élevé)	
		B (Normal)	

German:	Beanspruchbarkeit der Zeltstoffe	A (Hoch)	
		B (Normal)	

NOTE 2 If other languages are used, the marking shall be made in the same manner and wording in that language.

- c) optionally, flame retardant performance for fabrics complying with the requirements of 4.13.

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