

SLOVENSKI STANDARD

SIST EN 15619:2014

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Nadomešča:

SIST EN 15619:2009+A1:2011

Gumirane ali plastificirane tekstilije - Varnost začasnih konstrukcij (šotori) - Specifikacija tekstilij, namenjenih za šotore in podobne konstrukcije

Rubber or plastic coated fabrics - Safety of temporary structures (tents) - Specification
for coated fabrics intended for tents and related structures

Mit Kautschuk oder Kunststoff beschichtete Textilien - Sicherheit Fliegender Bauten
(Zelte) - Spezifikation für beschichtete Textilien für Zelte und zugehörige Bauten

Supports textiles revêtus de caoutchouc ou de plastique - Sécurité des structures
temporaires (tentes) - Spécification des supports textiles revêtus destinés aux tentes et
structures similaires

Ta slovenski standard je istoveten z: EN 15619:2014

ICS:

59.080.40	Površinsko prevlečene tekstilije	Coated fabrics
97.200.30	Oprema za taborjenje in tabori	Camping equipment and camp-sites

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15619

March 2014

ICS 59.080.40; 97.200.30

Supersedes EN 15619:2008+A1:2010

English Version

**Rubber or plastic coated fabrics - Safety of temporary structures
(tents) - Specification for coated fabrics intended for tents and
related structures**

Supports textiles revêtus de caoutchouc ou de plastique -
Sécurité des structures temporaires (tentes) - Spécification
des supports textiles revêtus destinés aux tentes et
structures similaires

Mit Kautschuk oder Kunststoff beschichtete Textilien -
Sicherheit Fliegender Bauten (Zelte) - Spezifikation für
beschichtete Textilien für Zelte und zugehörige Bauten

This European Standard was approved by CEN on 20 December 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15619:2014) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2014 and conflicting national standards shall be withdrawn at the latest by September 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15619:2008+A1:2010.

The main changes in comparison with the previous edition include:

- the normative references have been updated;
- use of the expression “coated fabric producer” instead of “manufacturer” throughout the document;
- subclause 5.9 “Reaction to fire” updated to include an alternative test method related to fire behaviour, used to determine the “Euroclasses”;
- Clause 6 “Requirements” has been updated to include:
 - explanation to determine the product profile;
 - separate tables introduced tables (one table per performance) to avoid confusion when determining the product profile;
 - a specific codification letter is used for each performance;
 - a fourth performance level has been added to Tables 4 and 8 (elongation), Tables 5 and 9 (residual deformation);
- creation of a new Clause 7, Information provided by the coated fabric producer;
- addition of subclause A.8 “Test report”;
- Annex C has been deleted and references to this annex replaced by reference to EN 15977.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The purpose of this European Standard is to specify the characteristics, the requirements and the test methods for coated fabrics intended for temporary structure and tents.

Particular care has been taken not to come in conflict with the items that have already been treated in EN 13782. This European Standard has been drawn up according to past experience and risk analysis. The content of this European Standard collects the different existing national regulations and refers to the different European test standards available for coated fabrics.

This European Standard also introduces a system of levels. It is not possible to divide coated fabric for tents into just a few performance levels, because of the enormous variety of conditions of use. This European Standard proposes different level of performance (level F₁, F₂, F₃, for examples) for each characteristic – or T1, T2, T3, T4 for the fire behaviour. This allows choice of the appropriate level for each characteristic and thus enables the composition of a “product profile”, adapted to each specific type of use. This means, for example, that for small tents exposed to low wind and snow loads but high exposition to sun light, a mechanical resistance level F₃ may be required combined with a colour fastness level C₁.

This European Standard specifies requirements which are useful for design, calculation, manufacture, installation, maintenance, operation, examination and testing of coated fabric. The informative Annex D gives recommendations regarding the assessment of conformity of the production. The informative Annex C gives recommendations regarding the weld resistance.

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EN 15619:2014 (E)**1 Scope**

This European Standard specifies the characteristics, requirements and test methods for coated fabric intended for mobile, temporary installed tents (see 3.3) and related structures.

Plastic film and material other than coated fabrics are not covered by this European Standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1875-3, *Rubber- or plastics- coated fabrics - Determination of tear strength - Part 3: Trapezoidal method*

EN 14115, *Textiles - Burning behaviour of materials for marquees, large tents and related products - Ease of ignition*

EN 15977:2011, *Rubber or plastic coated fabrics - Mechanical properties - Determination of the elongation under load and the residual deformation*

EN 20105-A02, *Textiles - Tests for colour fastness - Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

EN ISO 846, *Plastics - Evaluation of the action of microorganisms (ISO 846)*

EN ISO 1421, *Rubber- or plastics-coated fabrics - Determination of tensile strength and elongation at break (ISO 1421)*

EN ISO 2286-2, *Rubber- or plastics-coated fabrics - Determination of roll characteristics - Part 2: Methods for determination of total mass per unit area, mass per unit area of coating and mass per unit area of substrate (ISO 2286-2)*

EN ISO 2411, *Rubber- or plastics-coated fabrics - Determination of coating adhesion (ISO 2411)*

EN ISO 4892-3, *Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps (ISO 4892-3)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

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

3 Terms and definitions

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

3.1**initial approval**

design and calculation review, verification, examinations and tests executed before granting a permit for tent operation

3.2**membrane joint**

junction of two coated fabric membrane surfaces executed by a sewn, welded, glued or clamped connection

3.3**tent**

mobile, temporary installed structure enclosure or open building, excluding camping tents

EXAMPLE Marquee, hangar, tent-hall, booth.

3.4**surface top coating**

additional protection of the surface of coated fabric against soiling and discolouration

3.5**product family**

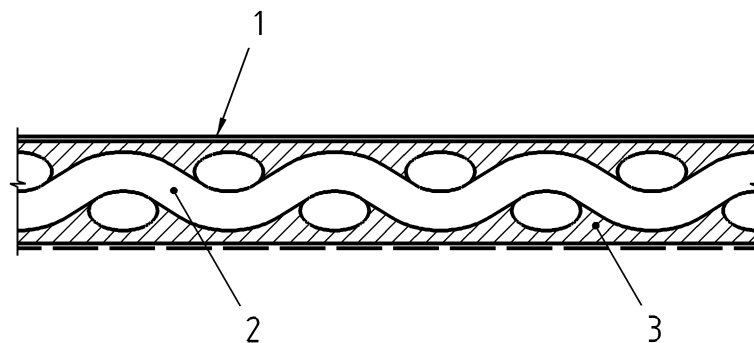
total range of products within specific variability limits (defined by the coated fabric producer or a technical specification) of the product parameters and, if appropriate, of the final use parameters for which the specified characteristics do not change (do not deteriorate)

Note 1 to entry: The test results obtained from any one product within the family are valid for all other products within the family.

4 General description of coated fabrics intended for tents

The yarns are in most cases woven into fabrics (some could be based on warp-knitted fabrics¹⁾). Coatings on one or both sides guarantee the integrity, contribute to the protection of the fabric against mechanical damage, atmospheric influence, and also against damage caused by animals, plant, and chemical agents. Coatings may be covered by a top coating providing additional protection of the surface against soiling and discoloration.

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**Key**

- 1 top coating
- 2 fabric
- 3 coating

Figure 1 — Schema of a cross section of a woven fabric coated on both sides

1) In the cases of warp-knitted fabrics, the requirements of the Tables 1 to 10 remain identical, "warp" meaning the warp direction and "weft" meaning the course direction.

5 Characteristics relating to coated fabrics

5.1 Mass per unit area

The mass per unit area of the coated fabric shall be measured in accordance with EN ISO 2286-2.

5.2 Tensile mechanical behaviour

Tensile strength shall be measured according to method 1 of EN ISO 1421. Tensile properties measured by means of EN ISO 1421 monoaxial tensile test in warp and weft direction are most of the time sufficient for design.

5.3 Tear strength

In order to assess the risk of propagation of a tear due to lack of quality of the coated fabric or to an accident, the tear strength performances of a coated fabric shall be measured according to EN 1875-3.

5.4 Coating adhesion

The adhesion between the base fabric and the coating layer of the membrane material shall be assumed by coating adhesion tests according to Annex B.

5.5 Dimensional stability

During its life, the tent membrane made up of coated fabric is submitted to many environmental loads (wind, snow, rain) and many mounting and dismantling of the structure. In order to limit any dimensional change of the membrane panels during the life of the tent, the fabric shall be dimensionally stable. The dimensional stability of the fabric shall be measured in both directions according to EN 15977.

For tents exposed to elevated temperatures during their use, an optional test is proposed according to EN 15977:2011 including a heat exposure (Clause 7) before mechanical loading.

5.6 Colour fastness to weathering and light

The samples are exposed according to Annex A. Colour fastness is assessed by comparison with the grey scale and the specimens exposed for 2 000 h to artificial ageing and the non-exposed specimens. The ageing procedure detailed in Annex A is based on EN ISO 4892-3 exposure mode 1 (UV, moisture cycle, and elevated temperature) that simulate the outdoor natural ageing.

5.7 Susceptibility to the development of microorganisms

In some climatic and environmental conditions, microorganisms may fix and develop on the surface of the coating. Their presence may damage the coating layer itself (discoloration, degradation of plastic coating) and may also hinder the use of the coated fabric membrane. The coated fabric producer shall ensure that the coated fabric is treated with adapted treatment or sufficiently resistant. This property shall be tested according to EN ISO 846.

5.8 Appearance

Inspection of the appearance of membrane is important not only from an aesthetic point of view, but also from the aspect of examining for the presence of defects causing structural problems and of obstructions during usage. Appearance can be inspected visually or by microscopy.

The possible inspection items are:

- a) thickness of protective coating on the surface of yarns;
- b) defects on yarns and their arrangement;
- c) cracking of the coating and adherence of dirt, stains and foreign matter;
- d) other defects which may cause obstruction in usage.

Inspection of those items may be carried out according to sampling plans of a single lot of membrane material. Judgement criteria for the inspection items are determined in accordance with the usage and grade of membrane materials.

Due to subjective approach and lack of standardized method, there is no requirement about this item described in Clause 6.

5.9 Reaction to fire

5.9.1 General

In order to protect peoples against the risk of full development of fire, the coated fabrics used for tent or related structures shall have an appropriate reaction to fire behaviour. For this purpose, the coated fabrics shall be tested according to EN 14115.

The coated fabrics used for tent covering, walls, textile decorations and related applications inside tents shall be classified in accordance with the following classification system.

Materials shall be classified in four categories T1, T2, T3, or T4 (5.9.2 to 5.9.5) or declared “Non classified” (5.9.6).

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As an alternative, coated fabrics intended for mobile, temporary installed tents (see 3.3) and related structures can also be tested according to EN ISO 11925-2 and EN 13823, and classified according to EN 13501-1 (B, C, D or E).

WARNING — It should be borne in mind that there is no validated correlation between the “T classification”, according to the present document, and the “Euroclass”, according to EN 13501-1.

5.9.2 Level T1

During the test, afterflame times shall not exceed 5 s in any of the specimens tested. Any glowing propagation effect shall not exceed 25 cm from the lower edge of the specimen. If there is any fall of droplets or particles which continue to burn after being in contact with the floor of the apparatus, the material is classified T4. If burning droplets or particles do not burn after being in contact with the floor, they are not taken into account.

Material with a duration of flaming not exceeding 5 s and that opens and does not allow any contact with the pilot flame, shall be subjected and pass the complementary test according to EN ISO 11925-2 with the following testing parameters:

- flame application: on the surface and at the bottom edge;
- time of the flame application: 30 s;
- requirement: the top of the flame shall not reach 150 mm from the application point of the flame before 60 s. In case of failure, the material shall be declared “Non classified”.