



SLOVENSKI STANDARD

SIST EN 13984:2005

01-maj-2005

Hidroizolacijski trakovi - Polimerni in elastomerni trakovi, ki kontrolirajo gibanje vode in/ali vodne pare - Definicije in lastnosti

Flexible sheets for waterproofing - Plastic and rubber vapour control layers - Definitions and characteristics

Abdichtungsbahnen - Kunststoff- und Elastomer-Dampfsperrbahnen - Definitionen und Eigenschaften

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Feuilles souples d'étanchéité - Feuilles plastiques et élastomères utilisées comme pare-vapeur - Définitions et caractéristiques

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ICS:

01.040.91	Gradbeni materiali in gradnja (Slovarji)	Construction materials and building (Vocabularies)
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

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ICS 01.040.91; 91.100.50

English version

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This European Standard was approved by CEN on 20 October 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	5
4 Product designation	6
5 Product characteristics	6
6 Evaluation of conformity.....	8
7 Product data sheet and designation.....	10
8 Marking, labelling and packaging	11
Annex A (informative) Product designation, typical materials and structure of sheets	12
A.1 Typical materials.....	12
A.1.1 General.....	12
A.1.2 Plastics	12
A.1.3 Rubbers	12
A.1.4 Thermoplastic rubbers.....	12
Annex B (normative) Method of measuring the resistance of ventilating vapour control layers to deformation under load.....	13
B.1 Principle.....	13
B.2 Apparatus	14
B.3 Preparation of test samples and test specimens.....	15
B.3.1 Sampling.....	15
B.3.2 Preparation of test specimens	15
B.4 Procedure	16
B.5 Expression of results	16
B.6 Test report	16
Annex C (normative) Method of testing for the accelerated ageing of damp proof vapour control layers in an alkaline environment	17
C.1 Principle.....	17
C.2 Apparatus	17
C.3 Test specimens	17
C.4 Procedure	17
C.4.1 Accelerated ageing	17
C.4.2 Evaluation.....	18
C.5 Test report	18
Annex D (informative) Example of product data sheet.....	19
General information.....	19
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives	20
ZA.1 Scope and relevant characteristics	20
ZA.2 Procedure(s) for attestation of conformity	21
ZA.2.1 Systems of attestation of conformity	21
ZA.2.2 EC Certificate and declaration of conformity	24
ZA.3 CE marking and labelling.....	25
Bibliography.....	27

Foreword

This document (EN 13984:2004) has been prepared by Technical Committee CEN/TC 254 "Flexible sheets for waterproofing", 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 June 2005, and conflicting national standards shall be withdrawn at the latest by September 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This document is a general product standard for flexible sheets of plastics intended for vapour control layers, for use in buildings. This document is one of a series of product standards for factory made flexible sheets for use in buildings.

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

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1 Scope

This document specifies the characteristics of flexible sheets of plastic or rubber intended for use as water vapour control layers for buildings and applies to both reinforced and unreinforced products. It specifies requirements and test methods and provides for the evaluation of conformity of the products with the requirements of this document.

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.

EN 1296, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roofing — Method of artificial ageing by long term exposure to elevated temperature*

EN 1848-2, *Flexible sheets for waterproofing — Determination of length, width, straightness and flatness — Part 2: Plastic and rubber sheets for roof waterproofing*

EN 1849-2, *Flexible sheets for waterproofing — Determination of thickness and mass per unit area — Part 2: Plastic and rubber sheets for roof waterproofing*

EN 1850-2, *Flexible sheets for waterproofing — Determination of visible defects — Part 2: Plastic and rubber sheets for roof waterproofing*

EN 1928:2000, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of watertightness*

EN 1931, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of water vapour transmission properties*

EN 12310-1, *Flexible sheets for waterproofing — Part 1: Bitumen sheets for roof waterproofing — Determination of resistance to tearing (nail shank)*

EN 12311-2, *Flexible sheets for waterproofing — Determination of tensile properties — Part 2: Plastic and rubber sheets for roof waterproofing*

EN 12317-2, *Flexible sheets for waterproofing — Determination of the shear resistance of joints — Part 2: Plastic and rubber sheets for roof waterproofing*

EN 12691, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to impact*

EN 13416:2001, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Rules for sampling*

EN 13501-1:2002, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

prEN 13859-1:2000, *Flexible sheets for waterproofing — Definitions and characteristics of underlays — Part 1: Underlays for discontinuous roofing*

EN ISO 9001, *Quality management systems — Requirements (ISO 9001:2000)*

EN ISO 11925-2, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Single-flame source test (ISO 11925-2:2002)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13416:2001 and the following apply.

3.1

water vapour control layers

flexible sheet of plastic or rubber or composites sheet whose function is to control the movement of water and/or water vapour through a wall, floor or roof

NOTE They may have different permeabilities to water vapour depending on the specific use. In composite sheets the plastic sheet is the functional component.

3.2

ventilating or draining vapour control layers

flexible sheets conforming to the definition in 3.1 but with the ability to provide a continuous void or structure to allow free movement of water vapour or liquid water between the sheet and any further construction

3.3

manufacturer's limiting value, MLV

value stated by the manufacturer to be met during testing. The manufacturer's limiting value can be a minimum or a maximum value according to statements made under product characteristics of this document

3.4

manufacturer's declared value, MDV

value declared by the manufacturer accompanied by a declared tolerance

3.5

plastic sheet

factory made flexible sheet made from a plastic elastomeric polymeric material and which may include composites with other materials

3.6

rubber sheet

factory made flexible sheet made from an elastomeric polymeric material and which may include composites with other materials

3.7

sampling

procedure used to select or constitute a sample

3.8

sample

sheet from which a test piece is taken

3.9

test piece

part of the sample from which test specimens are taken

3.10

test specimen

piece of precise dimensions taken from the test piece

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4 Product designation

The types of vapour control layers covered by this document are designated as follows:

Type A: Vapour control layers;

Type B: Vapour control layers - non water tight;

Type V: Vapour control layers - ventilating or draining vapour control layer.

5 Product characteristics

5.1 General

5.1.1 Where a tolerance is limited by this document it does not have to be declared by the manufacturer.

5.1.2 When tested for purposes other than initial type testing or factory production control, the tests to determine product characteristics indicated in this document shall be started within 1 month of delivery from the manufacturer.

5.2 Visible defects

The product shall be free of visible defects as determined in accordance with EN 1850-2.

5.3 Dimensions and tolerances

The length, width and straightness shall be determined in accordance with EN 1848-2. The length and width shall lie within the declared tolerance of the manufacturer's declared value (MDV). The maximum deviation from straightness shall not exceed 75 mm per 10 m length or in proportion for other lengths (e.g. 37,5 mm per 5 m length).

5.4 Thickness and mass per unit area

The thickness and mass per unit area shall be determined in accordance with EN 1849-2.

Where a product is specified by mass per unit area, the mass shall lie within the declared tolerance of the manufacturer's declared value. Where the dimensions of any profile are comparable to the area to be measured, a larger sample area shall be used and the deviation from the test method noted.

Where a product is specified by thickness, the minimum thickness shall lie within the declared tolerance of the manufacturer's declared value. No single measurement shall lie outside the declared tolerance of the manufacturer's declared value.

5.5 Water tightness

Types A and V vapour control sheets shall be watertight as determined by EN 1928:2000 Method A with a pressure of 2 kPa.

5.6 Resistance to impact

If required, the resistance to impact shall be determined in accordance with EN 12691 but with a drop height of 300 mm \pm 5 mm. It shall be expressed as the smallest diameter it will resist and shall be greater than or equal to the manufacturer's limiting value. The expression of the manufacturer's limiting value in millimetres shall be accompanied by the drop height $h = 300$ mm.

5.7 Durability

5.7.1 After exposure to artificial ageing

The product shall be exposed to an elevated temperature of 70 °C for 12 weeks in accordance with EN 1296. The water vapour resistance of the aged product shall not change by more than ± 50 % of that of the un-aged product when tested to EN 1931.

5.7.2 Against alkali

Where required, plastic vapour control layers shall be tested in accordance with the method given in Annex C. The product passes if the elongation after 24 weeks is not less than 50 % of the initial value.

5.8 Resistance to tearing (nail shank)

For unreinforced sheets the tear resistance (nail shank) shall be determined in accordance with EN 12310-1 and shall be greater than or equal to the manufacturer's limiting value.

For reinforced sheets the tear resistance (nail shank) shall be determined in accordance with Annex B of prEN 13859-1:2000 and shall be greater than or equal to the manufacturer's limiting value.

5.9 Joint strength

Where required the joint strength shall be determined in accordance with EN 12317-2 and shall be greater than or equal to the manufacturer's limiting value.

5.10 Water vapour transmission properties

The water vapour resistance shall be determined in accordance with EN 1931 and shall lie within the declared tolerance of the manufacturer's declared value.

5.11 Tensile properties

The tensile properties of unreinforced sheets shall be determined in accordance with EN 12311-2 and shall be greater than or equal to the manufacturer's limiting value for the longitudinal and transverse directions of the sheet.

The tensile properties of reinforced sheets shall be determined in accordance with Annex A of prEN 13859-1:2000 and shall be greater than or equal to the manufacturer's limiting value for the longitudinal and transverse directions of the sheet.

5.12 Reaction to fire

Where required, the product shall be tested and classified in accordance with EN 13501-1:2002, Table 1. When tested according to EN ISO 11925-2, the products shall be tested under conditions of surface flame attack.

NOTE It is currently considered that the Euroclasses Classification system at Classes D and above requires investigation to determine its appropriateness to the products covered by this document (the SBI test may be inappropriate for products covered by the document). Pending results of such an investigation and discussions in the Fire Regulators Group, products covered by this document are tested to EN ISO 11925-2.

If and when a new fire test scenario and test method are developed for the products, this document will be amended to refer to them.

5.13 Resistance to deformation under load

The resistance to deformation under load shall be determined in accordance with Annex B and the results shall be greater than or equal to the manufacturer's limiting value.

5.14 Dangerous substances

For products placed on the market within the European Economic Area see ZA.1. Outside the EEA products shall conform to any applicable provisions related to dangerous substances valid in the place of use.

The manufacturer shall disclose on the product wrapper and in the health and safety data sheets the use of any additive or constituent considered hazardous.

6 Evaluation of conformity

6.1 General

The compliance of a plastic or rubber vapour control layer with the requirements of this document and with the stated values (including classes) shall be demonstrated by:

- initial type testing;
- factory production control by the manufacturer.

For the purposes of testing, products may be grouped into families, where it is considered that the selected property is common to all products within that family.

6.2 Type testing

6.2.1 General

Initial type testing shall be performed to show conformity with this document. Tests previously performed in accordance with the provisions of this document (same product, same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) may be taken into account. In addition, initial type testing shall be performed at the beginning of the production of a new product type (unless a member of the same family) or at the beginning of a new method of production (where this may affect the stated properties).

All characteristics in Clause 5 shall be subject to initial type testing, where required (see Table 1).

Whenever a change occurs in the product design, the raw material or supplier of the components, or the production process (subject to the definition of a family), which would change significantly one or more of the characteristics, the type tests shall be repeated for the appropriate characteristic(s).

6.2.2 Sampling

Samples shall be taken according to EN 13416. The minimum number of tests to show compliance for initial and further type testing shall be one for all characteristics.

6.3 Factory production control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market conform with the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

If a manufacturer claims compliance with FPC requirements by operating an EN ISO 9001 system, EN ISO 9001 shall be applied in full and shall be made specific to the requirements of this document..

The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded.

6.3.2 Frequency of testing

The characteristics to be controlled within the framework of factory production control are those for which the manufacturer claims a performance. Control of the product is required, either by direct testing or by indirect control. The frequency of testing shall be given in the manufacturer's factory production control system.

Table 1 — Compliance criteria for initial type testing

Property	Product type			Parameter	Clause in this document	Test method	Compliance criteria (where required)
	A	B	V				
Water vapour transmission	*	*	*	MDV	5.10	EN 1931	Within declared tolerance of the MDV
Water tightness to liquid water	*		*	Watertight at 2 kPa	5.5	EN 1928	Pass
Reaction to fire	*	*	*	Euroclass	5.12	EN 13501-1 (see Note in 5.12)	Classification
Tensile properties							
- unreinforced sheets	*	*	*	MLV	5.11	EN 12311-2	Greater than or equal to MLV
- reinforced sheets	*	*	*	MLV	5.11	prEN 13859-1	
Durability of water vapour resistance against ageing	*	*	*	Not more than $\pm 50\%$ change	5.7.1	EN 1296 Test afterwards to EN 1931	Pass
Resistance to impact	*	*	*	MLV	5.6	EN 12691 (but with $h = 300$ mm)	Greater than or equal to MLV
Resistance to tear (Nail Shank)							
- unreinforced sheets	*	*	*	MLV	5.8	EN 12310-1	Greater than or equal to MLV
- reinforced sheets	*	*	*	MLV	5.8	prEN 13859-1	
Joint strength	*	*	*	MLV	5.9	EN 12317-2	Greater than or equal to MLV
Resistance to deformation under load			*	MLV	5.13	Annex B	Greater than or equal to MLV