BS EN 13967:2012

BSI Standards Publication

Flexible sheets for waterproofing — Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet — Definitions and characteristics

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National foreword

This British Standard is the UK implementation of EN 13967:2012. It supersedes BS EN 13967:2004+A1:2006, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/546, Flexible sheets for waterproofing and water vapour control.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet - Definitions and characteristics

Feuilles souples d'étanchéité - Feuilles plastiques et élastomères empêchant les remontées capillaires du sol - Définitions et caractéristiques

Abdichtungsbahnen - Kunststoff- und Elastomerbahnen für die Bauwerksabdichtung gegen Bodenfeuchte und Wasser - Definitionen und Eigenschaften

This European Standard was approved by CEN on 23 March 2012.

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Foreword

This document (EN 13967:2012) has been prepared by Technical Committee CEN/TC 254 “Flexible sheets for waterproofing”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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 13967:2004.

The main technical changes are:

— For durability against chemicals, EN 1847:2009 of TC 254 is used instead of special Annex C.

— The minimum tolerance for the water vapour transmission is fixed.

— The rules for mounting and fixing for reaction of fire testing are improved and the variation of products where results apply are fixed.

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 European Standard is a general product standard for flexible sheets of plastics intended for damp proof sheets, including plastics basement tanking sheets, for use in buildings. This standard 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, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, 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.

1 Scope

This document specifies definitions and characteristics of flexible plastic and rubber sheets which are intended to be used as damp proofing for buildings, including basement tanking. It specifies the requirements and test methods, and provides for the evaluation of conformity of the products with the requirements of this 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 1296, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roofing — Method of artificial ageing by long term exposure to elevated temperature*

EN 1548, *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Method for exposure to bitumen*

EN 1847:2009, *Flexible sheets for waterproofing —Plastic and rubber sheets for roof waterproofing — Methods for exposure to liquid chemicals, including water*

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*

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 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 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 12730:2001, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to static loading*

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

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13859-1:2010, *Flexible sheets for waterproofing — Definitions and characteristics of underlays — Part 1: Underlays for discontinuous roofing*

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)*

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
sheet for damp proofing
plastic or rubber sheet used on or under floors/ground slabs or in walls to prevent liquid water not under hydrostatic pressure passing from the ground into the internal environment

3.2
ventilating or draining damp proof sheet
sheet conforming to the definition in 3.1 and 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
tanking sheet
sheet conforming to the definition in 3.1 used in wall construction or on or under floors or ground slabs to prevent liquid water under hydrostatic pressure passing from the ground into the internal environment or from one section of the structure to another

3.4
manufacturer's limiting value
MLV
value stated by the manufacturer to be met during testing

Note 1 to entry: The manufacturer's limiting value can be a minimum value or a maximum value, according to statements made under product characteristics of this standard.

3.5
manufacturer's declared value
MDV
value declared by the manufacturer accompanied by a declared tolerance

3.6
plastic sheet
factory-made flexible sheet made from a plastic polymeric material and which may include composites of other materials

3.7
rubber sheet
factory-made flexible sheet made from an elastomeric polymeric material and which may include composites of other materials

3.8
sampling
procedure used to select or constitute a sample

3.9
sample
sheet from which a test piece is taken

3.10
test piece
part of the sample from which test specimens are taken

3.11
test specimen
piece of precise dimensions taken from the test piece

3.12
batch
amount of product continuously manufactured to the same specification

4 Product designation

The types of damp proof sheets covered by this document are designated as follows:

TYPE A damp proof sheet;

TYPE V damp proof ventilating or draining sheet;

TYPE T tanking sheet.

5 Product characteristics

5.1 General

5.1.1 Where a tolerance is specified 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 Deviation from test sample dimensions

Where the contours of the product make it impossible to obtain a test sample of the required dimensions, or otherwise render the test impracticable, testing may be carried out either on samples of different dimensions, or if still impracticable, on the equivalent flat sheet of the same thickness as the finished product. Any such deviations from the test method shall be recorded on the test report and the product data sheet.

5.3 Visible defects

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

5.4 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 shall be in the same proportion for other lengths (e.g. 37,5 mm per 5 m length).

5.5 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 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.

5.6 Water tightness

The product shall be watertight as determined by Method A or B of EN 1928:2000 with a pressure of 2 kPa for Types A and V damp proof sheets and a pressure of 60 kPa for Type T damp proof sheets.

5.7 Resistance to impact

Where required, the resistance to impact shall be determined in accordance with EN 12691 and the result shall be greater than or equal to the manufacturer's limiting value.

5.8 Durability

5.8.1 Against ageing/degradation

In order to verify the artificial ageing behaviour of the product, watertightness shall be determined after exposure in accordance with EN 1296 for a period of 12 weeks. The watertightness shall be determined in accordance with EN 1928:2000 Method A or B. Type A and V damp proof sheets shall be tested at a pressure of 2 kPa and Type T tanking sheets at a pressure of 60 kPa, and shall give a pass result.

5.8.2 Against chemicals

In order to verify the durability of the products, the sheet shall be tested before and after exposure to chemicals in accordance with EN 1847. The sheet shall be watertight as determined in accordance EN 1928:2000 Method A or B, with a pressure of 2 kPa for Types A and V damp proof sheets and a pressure of 60 kPa for Type T damp proof sheets, both before and after long-term exposure to alkali, in accordance with EN 1847:2009 test liquid 2 (milk of lime), 28 d, 23 °C.

5.9 Compatibility with bitumen

Where required, the product shall be exposed to bitumen for 28 days at 70 °C using the method given in EN 1548, but with a sample size large enough to provide a 200 mm diameter circular sample after exposure. It shall be watertight when subsequently tested in accordance with Method A of EN 1928:2000. Type A and V damp proof sheets shall be tested at a pressure of 2 kPa and Type T tanking sheets at a pressure of 60 kPa.

5.10 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 EN 13859-1:2010 and shall be greater than or equal to the manufacturer's limiting value.

5.11 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.

5.12 Water vapour transmission properties

Where required, the moisture resistance factor μ of plastic and rubber sheets shall be determined in accordance with EN 1931 and the result shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie in ± 30 %.

5.13 Resistance to static loading

The resistance to static loading shall be determined in accordance with Method B of EN 12730:2001 and shall be greater than or equal to the manufacturer's limiting value.

5.14 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 EN 13859-1:2010 and shall be greater than or equal to the manufacturer's limiting value for the longitudinal and transverse directions of the sheet.

5.15 Resistance to deformation under load

The resistance of ventilating or draining damp proof sheets to deformation under load shall be determined in accordance with Annex B and the results shall be less than or equal to the manufacturer's limiting value of deformation at the defined load and the defined time.

5.16 Reaction to fire

Where required, the product shall be tested and classified in accordance with EN 13501-1:2007+A1:2009, Table 1. According to EN ISO 11925-2, the test is required to be undertaken on the exposed surface of the delivered flexible sheet membrane (surface exposure), free hanging without any substrate, in one direction only. The reinforcement shall be stated by the manufacturer as “organic” or “inorganic”.

a) Test results from EN ISO 11925-2 for a given product shall apply to all colors (including black and white).

b) Test results from EN ISO 11925-2 for a given product without an inner layer (homogenous) shall apply to a comparable product with an additional organic inner layer (lower than 150g/m^2) or any additional inorganic layer.

c) Test results from EN ISO 11925-2 for a product with a thickness of above 1 mm shall apply to any comparable product with a higher thickness up to a limit of 3 mm respectively

d) Test results from EN ISO 11925-2 for a given product with a backing shall apply to a comparable product with a backing of the same type of lower mass per unit area or no backing.

NOTE Whether the Euroclasses Classification system at Classes D and above requires investigation to determine its appropriateness to the products covered by this document is currently under consideration. (In particular it is thought that the SBI test may be inappropriate for products covered by the standard.) Pending results of such an investigation and discussions in the Fire Experts 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.

5.17 Dangerous substances

NOTE 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 damp proofing sheet 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, including product assessment.

For the purposes of testing, products may be grouped into families, where the selected property is considered 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 standard (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.

Whenever a change occurs in the product design, the raw material, 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 to 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 FPC 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 FPC system.

Table 1 — Compliance criteria for initial type testing

Property (where required)	Product Type			Parameter	Test method	Sub-clause in this document	Compliance criteria (where required)
	A	V	T				
Water tightness to liquid water	*	*	*	Watertight At 2 kPa At 60 kPa	EN 1928	5.6	Pass
Resistance to static loading	*	*	*	MLV	EN 12730	5.13	≥ MLV
Tensile properties - unreinforced sheets - reinforced sheets	* *	* *	* *	 MLV MLV	 EN 12311-2 EN 13859-1	 5.14 5.14	≥ MLV
Durability of watertightness against ageing	*	*	*	Watertight At 2 kPa At 60 kPa	EN 1296 Test afterwards to EN 1928	5.8.1	Pass
Durability of watertightness against chemicals	*	*	*	Watertight At 2 kPa At 60 kPa	EN 1847 Test afterwards to EN 1928	5.8.2	Pass
Resistance to impact	*	*	*	MLV	EN 12691	5.7	≥ MLV
Resistance to tear (Nail Shank) - unreinforced sheets - reinforced sheets	* *	* *	* *	 MLV MLV	 EN 12310-1 EN 13859-1	 5.10 5.10	≥ MLV
Reaction to fire	*	*	*	Euroclass	EN 13501-1 (see Note in 5.16)	5.16	Classification
Bitumen compatibility	*	*	*	Watertight At 2 kPa At 60 kPa	EN 1548 and EN 1928	5.9	Pass
Joint strength	*	*	*	MLV	EN 12317-2	5.11	≥ MLV
Water vapour transmission	*	*	*	MDV	EN 1931	5.12	Within declared tolerance of MDV
Resistance to deformation under load		*		MLV	Annex B	5.15	≤ MLV
Length	*	*	*	MDV	EN 1848-2	5.4	Within declared tolerance of MDV
Width	*	*	*	MDV	EN 1848-2	5.4	Within declared tolerance of MDV
Thickness	*	*	*	MDV	EN 1849-2	5.5	Within declared tolerance of MDV

Table 1 (*continued*)

Property (where required)	Product Type			Parameter	Test method	Sub-clause in this document	Compliance criteria (where required)
	A	V	T				
Mass	*	*	*	MDV	EN 1849-2	5.5	Within declared tolerance of MDV
Straightness	*	*	*	Less than or equal to 75 mm/10 m	EN 1848-2	5.4	Pass
Dangerous substances	*	*	*	As relevant	As relevant	5.17	As relevant
Visible defects	*	*	*	Visible defects	EN 1850-2	5.3	No visible defects

7 Product data sheet and designation

The characteristics of the product, determined in accordance with the test methods specified in this standard, shall be listed in a technical data sheet, an example of which is shown in Annex C. The technical data sheet shall give at least the following information:

a) product trade name and manufacturer's name;

b) origin/source of manufacture or traceable code;

c) method of application;

d) results from the tests in Table 1, as appropriate for the intended end use;

e) certification mark, if any;

f) consumer information, e.g. restrictions concerning use and storage and safety precautions during installation and disposal;

g) description of the product (e.g. type and number of carriers, type of coating, mass or thickness, type of surfacing).

8 Marking, labelling and packaging

The following information shall be indicated on each roll or at least on each consignment:

a) production date or identification number;

b) product trade name;

c) length and width;

d) thickness or mass;

e) labelling according to national regulations related to dangerous substances and/or health and safety;

f) type of product (Type A, Type V or Type T).

NOTE Where ZA.3 covers the same information as required by this clause, the requirements of this clause are met.

Annex A
(informative)

Product designation, typical materials and structure of sheets

A.1 Typical materials

A.1.1 General

Three groups of synthetic materials are used in the application of flexible sheets for waterproofing: plastics, rubbers and thermoplastic rubbers.

Within these three groups are various materials, which can be different in their nature and way of manufacturing. In the following, some typical materials for the individual groups are listed. Other materials may be possible however, because this document should not hinder further development.

NOTE The abbreviations listed in Annex A are commonly used in the single ply roofing and waterproofing industry and for the national application standards of flexible sheets for waterproofing.

A.1.2 Plastics

CSM	Chlorosulfonyl polyethylene
EEA	Ethylene/ethyl acetate Ethylene/ethyl acetate terpolymer (stated in full in words)
EBA	Ethylene/butyl acetate
ECB	Ethylene, copolymer, bitumen
EVAC	Ethylene/vinyl acetate
FPO	Flexible polyolefin
FPP	Flexible polypropylene
PE	Polyethylene
PE-C	Chlorinated polyethylene
PIB	Polyisobutylene
PP	Polypropylene
PVC	Polyvinylchloride

A.1.3 Rubbers

BR	Butadiene rubber
CR	Chloroprene rubber
CSM	Chlorosulfonyl polyethylene rubber
EPDM	Terpolymer of ethylene, propylene and a diene with residual unsaturated portion of diene in the side chain
IIR	Isobutene-isoprene rubber (butyl rubber)
NBR	Acrylonitrile-butadiene rubber (nitrile rubber)

A.1.4 Thermoplastic rubbers

EA	Elastomeric alloys
MPR	Melt processible rubber
SEBS	Styrene ethylene butylene styrene
TPE-O	Thermoplastic elastomers (not cross-linked)
TPE-V	Thermoplastic elastomers (cross-linked)

Annex B
(normative)

Method of measuring the resistance of ventilating and draining damp-proof sheets to deformation under load

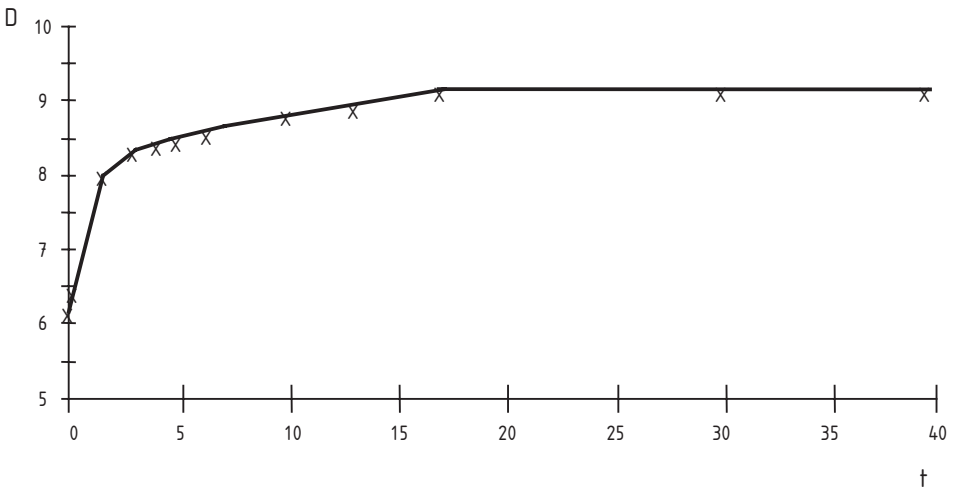
B.1 Principle

This is a method for the determination of the resistance of ventilating or draining thermoplastic damp-proof sheets and water vapour control products to deformation under load. The method is intended for the initial testing and/or for quality control purposes. The purpose of the test is to determine the loading resistance of flexible, profiled (non-flat) sheets for damp protection, which, in addition, provide ventilation or drainage to deformation under load.

A conditioned test specimen is placed under a fixed load. Deformation is recorded as a function of time. The test is suitable for products, other than flat sheets, which experience plastic creep, i.e. the test measures the ability of the products to retain their shape under a long term fixed load.

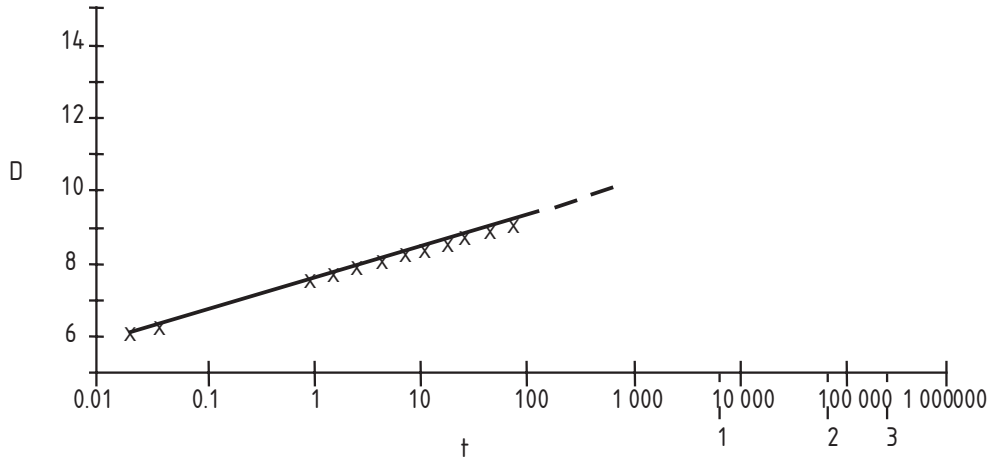
A suitable fixed load is defined as the required design load, plus a factor of safety. The time period for testing is determined by an assessment of the development of deformation with time in relation to both the acceptable degree of deformation and the expected life of the product.

These factors are illustrated in Figures B.1 and B.2. Extrapolation shall not exceed one unit of logarithmic time and the extrapolated part of the data shall be clearly indicated by a dotted line.



Key
D deformation %
t time h

Figure B.1 — Typical curve for deformation against time



Key
D deformation %
t time

NOTE 1 = 1 year, 2 = 10 years, 3 = 50 years

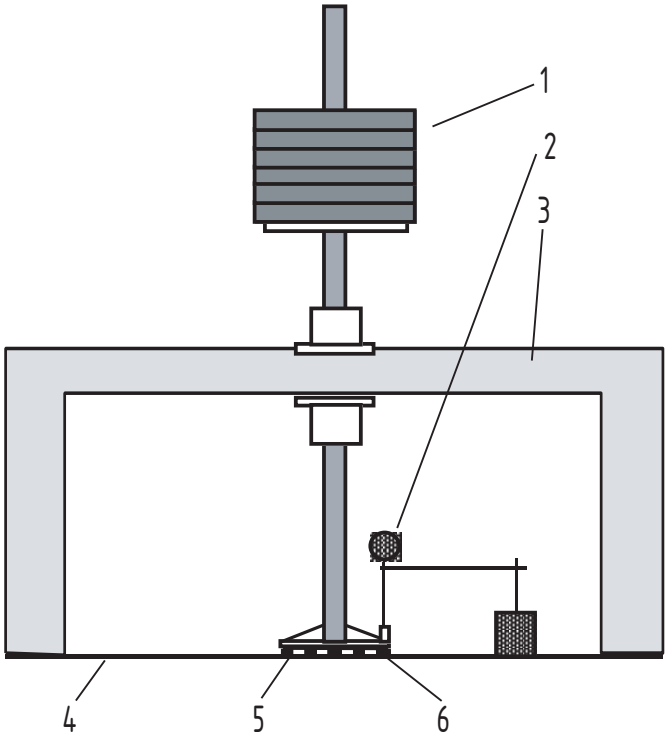
Figure B.2 — Typical logarithmic plot against time to determine deformation for design life

B.2 Apparatus

The specimen is placed between parallel rigid compression plates which distribute the load uniformly over the area of the specimen. The load may be applied either using physical weights or an alternative comparable method. Deformation is registered as a function of time. Preloading of the specimen prior to zeroing of deformation instrumentation may be applied to suit the product to be tested.

Zeroing of the deformation instrumentation shall be arranged such that any deformation prior to zeroing is either eliminated or negligible. Deformation is preferably measured directly on the pressure plate, or as close to the specimen as is practically possible, so that deformation errors in the apparatus are eliminated. Measuring instruments for deformation shall have a minimum accuracy of ± 0,02 mm. All measurements shall be recorded to the nearest 0,01 mm.

NOTE A typical test apparatus using physical weights is shown in Figure B.3.



Key
1 weights
2 measuring gauge
3 support frame
4 base plate
5 specimen
6 pressure plate

Figure B.3 — Typical test apparatus using physical weights

B.3 Preparation of test samples and test specimens

B.3.1 Sampling

Samples shall be taken in accordance with EN 13416.

B.3.2 Preparation of test specimens

Square or rectangular specimens with a minimum dimension of 120 mm shall be used, so that the test results are representative for design loads and required performance of the product being tested.

NOTE Minimum specimen size may be confirmed as a function of profile height by type testing, so as to eliminate the effect of less resistance against load along the edge of the specimen.

Condition the test specimens for at least 24 h at (23 ± 2) °C and a humidity of (50 ± 20) % RH.

B.4 Procedure

If results are to be presented as a percentage, measure the height of the product prior to commencement of loading. Determine the mean value for the specimen.

Measure the size of the specimen.

Carry out testing at a temperature of (23 ± 2) °C.

Place the specimen between the compression plates, apply preload where appropriate, and zero the deformation instrumentation. Apply the load as smoothly and as quickly as possible.

Subject the specimen to a constant static load over a period of time and a humidity of (50 ± 20) % RH. If humidity has no influence on the property being examined, the relative humidity may be uncontrolled.

Measure deformation in millimetres as a function of time.

NOTE Generally, the greatest deformation takes place initially, and measurements are made at short time intervals. As the increase in deformation reduces with time, the time intervals between measurements of deformation may be increased as the test progresses. (See Figures B.1 and B.2).

B.5 Expression of results

Express deformation in millimetres or percentage of original product height for the given constant static load for the stated time. Express constant static load in kN/m^2, calculated from the given test load in relation to specimen size.

NOTE For initial type testing, a graph of deformation against time may be plotted. (See Figures B.1and B.2).

B.6 Test report

The test report shall include at least the following information:

a) details of the plastic material;

b) test method;

c) test conditions (temperature, time);

d) special observations such as discoloration or deformations;

e) quantity of tested samples;

f) any deviations from this method;

g) test result: value of constant static load; specimen size; value of deformation at stated time interval for corresponding load per unit area;

h) the date of testing.

Annex C
(informative)

Example of product data sheet

General information

— Date and reference of this technical data sheet

— Product trade name

— Manufacturer/supplier

— Origin/source of manufacturing

— Type of application

— Method of application

— Product information[1]

— Certification mark, if relevant

— Consumer information[2]

— Description of product (e.g. type of plastic or rubber)

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1 See ZA.3, which limits the information to be given in association with the CE marking.

2 Such information includes, for example, restrictions concerning use and storage and safety precautions during installation and disposal.

Table C.1 — Example of information from testing

Characteristic	Test method	Units	Expression of result	Value or statement [a]
Water tightness to liquid water	EN 1928	-	Pass	
Resistance to static loading	EN 12730	kg	MLV	
Tensile properties: - Maximum tensile force - Elongation	EN 12311-2	 N/50 mm %	 MLV MLV	
Durability of watertightness against artificial ageing	EN 1296 and EN 1928	-	Pass	
Durability of watertightness against chemicals	EN 1847 and EN 1928	-	Pass	
Resistance to tear (nail shank)	EN 12310-1	N	MLV	
Impact resistance	EN 12691	mm	MLV	Method A or B
Bitumen compatibility	EN 1548 and EN 1928		Pass	
Joint strength	EN 12317-2	N/50 mm	MLV	
Water vapour transmission	EN 1931	$(m^2.s.Pa)/kg$	MDV	
Resistance to deformation under load	Annex B	-	MLV	
Reaction to fire	EN 13501-1	-	EN 13501-1 (see Note in 5.16)	
Length	EN 1848-2	m	MDV	
Width	EN 1848-2	m	MDV	
Thickness	EN 1849-2	mm	MDV	
Mass	EN 1849-2	kg/m^2	MDV	
Straightness	EN 1848-2	-	Pass	
Visible defects	EN 1850-2	-	Visible defects	

[a] To be completed by the manufacturer.

Annex ZA
(informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/102 Flexible sheets for waterproofing (as amended) by M 126, M 130 and M 137 given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the plastic and rubber sheets covered by this annex for the intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

WARNING — Other requirements and other EU Directives, not affecting the fitness for intended uses, can be applicable to the plastic and rubber sheets falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction website on EUROPA (accessed through http://ec.europa.eu/enterprise/construction/cpd-ds/).

This annex establishes the conditions for the CE marking of the plastic and rubber sheets intended for the uses indicated in Table ZA.1, and identifies the relevant clauses.

This annex has the same scope as the part in Clause 1 of this standard that relates to the aspect covered by the mandate and is defined by Table ZA.1.

Construction product: Plastic and rubber sheets

Intended uses: Damp proofing in buildings

Table ZA.1 — Characteristics meeting Mandate M 102 and amendments and relevant clauses

Essential characteristics	**Requirement clauses in this European Standard** *)	**Levels and/or classes**	**Notes**
Reaction to fire	5.16	Classes in accordance with EN 13501-5	To comply with regulatory requirements
Watertightness	5.6	-	Threshold value*)
Tear resistance	5.10	-	MLV
Joint strength	5.11	-	MLV
Impact resistance	5.7	-	MLV
Tensile strength	5.14	-	MLV
Resistance to static loading	5.13	-	MLV
Durability ▪ Watertightness after artificial ageing	5.8.1	-	Threshold value*)
▪ Watertightness after exposure to chemicals	5.8.2	-	Threshold value*)
Dangerous substances	5.17	-	See relevant NOTE in ZA.1
- means that no classes or levels are given by the mandate.			
*) The requirement on a certain characteristic is not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended end use of the product. In these cases, manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic: the option “No performance determined” (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used however, where the characteristic is subject to a threshold value.			

ZA.2 Procedures for attestation of conformity

ZA.2.1 Systems of attestation of conformity

The system(s) of attestation of conformity of plastic and rubber sheets indicated in Table ZA.1, in accordance with the Decision of the Commission 95/204/EC of 14/06/1995 as amended by 99/90/EC of 3/02/1999 and 2001/596/EC of 8/01/2001 and as given in Annex III of the mandate for M/102, is shown in Table ZA.2 for the indicated intended use and relevant classes.

Table ZA.2 — Systems of attestation of conformity

Product	Intended use	Level(s) or class(es)	Attestation of conformity system[a)]
Plastic and rubber sheets	Damp proofing in buildings, including basement tanking subject to reaction to fire	A1([1]), A2([1]), B([1]), C([1])	1
		A1([2]), A2([2]), B([2]),C([2]), D and E	3
		(A1 to E) ([3]) and F	4
	Damp proofing in buildings, including basement tanking [b)]	-	2+

([1]) Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).

([2]) Products/materials not covered by footnote ([1])

([3]) Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC, as amended).

[a)] System 1: See Directive 89/106/EEC (CPD) Annex III.2.(i), without audit testing of samples.

System 2+: See Directive 89/106/EEC (CPD) Annex III.2.(ii), First possibility, including certification of the factory production control by an approved body on the basis of initial inspection of factory and of factory production control as well as of continuous surveillance, assessment and approval of factory production control.

System 3: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility.

System 4: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Third possibility.

[b)] Because all damp proofing sheets have a requirement on watertightness, all products covered by this standard come under attestation system 2+. In case of additional requirements on reaction to fire for this characteristic and the related parameters and depending on the classes attestation of conformity, systems 1, 3 or 4 shall additionally apply.

For different possible combinations of intended uses, the tasks of the attestation of conformity procedure for reinforced plastic and rubber sheets in TableZA.1 shall be in accordance with Tables ZA.3.1 to ZA.3.3 with reference to the applicable clauses of this European Standard.

Table ZA.3.1 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for damp proofing and system 1 for reaction to fire classes A1(1), A2(1), B(1), C(1)

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to EC of Table ZA.1 relevant for the intended use which are declared	6.3
	Further testing of samples taken at factory according to the prescribed test plan	EC of Table ZA.1 relevant for the intended use which are declared	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1 , except reaction to fire	6.2
Tasks under the responsibility of the product certification body	Initial type testing	Reaction to fire classes A1 (1), A2(1), B(1), C(1) of Table ZA.1	6.2
	Initial inspection of factory and of FPC	Parameters related to EC of Table ZA.1, relevant for the intended use which are declared: reaction to fire. Documentation of the FPC.	6.3
	Continuous surveillance, assessment and approval of FPC	Parameters related to EC of Table ZA.1, relevant for the intended use which are declared: reaction to fire. Documentation of FPC	6.3
Tasks under the responsibility of the FPC certification body	Initial inspection of factory and of FPC	Parameters related to EC of Table ZA.1, relevant for the intended use which are declared: watertightness. Documentation of the FPC.	6.3
	Continuous surveillance, assessment and approval of FPC	Parameters related to EC of Table ZA.1, relevant for the intended use which are declared: watertightness. Documentation of the FPC.	6.3

Table ZA.3.2 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for damp proofing and system 3 for reaction to fire classes A1([2]), A2([2]), B([2]), C([2]), D and E

Tasks			Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)		Parameters related to all characteristics of Table ZA.1	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1, except reaction to fire	
	Initial type testing by a notified test lab		reaction to fire classes A1([2]), A2([2]), B([2]),C([2]), D and E of Table ZA.1	6.2
	Initial type testing by the manufacturer		All characteristics of Table ZA.1, except reaction to fire	6.2
	Certification of FPC by the FPC certification body on the basis of:	Initial inspection of factory and of FPC	Parameters related to all characteristics of Table ZA.1, in particular watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, in particular watertightness	6.3

Table ZA.3.3 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for damp proofing and system 4 for reaction to fire classes (A1 to E) ([3]) and F

Tasks			Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)		Parameters related to all characteristics of Table ZA.1	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1, except reaction to fire	
	Initial type testing by the manufacturer		All characteristics of Table ZA.1, except reaction to fire	6.2
	Certification of FPC by the FPC certification body on the basis of:	Initial inspection of factory and of FPC	Parameters related to all characteristics of Table ZA.1, in particular watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, in particular watertightness	6.3

ZA.2.2 EC Certificate and declaration of conformity

ZA.2.2.1 In case of products following Table ZA.3.1

When compliance with the conditions of this annex is achieved, the certification body shall draw up a certificate of conformity of the product (EC Certificate of Conformity), which is related only to the reaction to fire characteristic. The certificate entitles the manufacturer to affix the CE marking, and shall include the following:

— name, address and identification number of the certification body,

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production,

NOTE The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, ...),

— provisions to which the product conforms (i.e. Annex ZA of this EN),

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions),

— the number of the certificate,

— conditions of validity of the certificate, where applicable,

— name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up and retain a declaration of conformity (EC-Declaration of conformity) which includes the following:

— name and address of the manufacturer, or his authorised representative established in the EEA, and the place of production.

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— name and address of the certification body,

— description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking,

NOTE 2 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

— provisions to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT report(s) and factory production control records (if appropriate),

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions),

— number of the accompanying EC Certificate of conformity,

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

The EC declaration of conformity shall be accompanied by the FPC certificate, drawn up by the notified body, which shall contain, in addition to the information above, the following:

— name and address of the notified body,

— the number of the factory production control certificate,

— conditions of validity of the certificate, where applicable,

— name of, and position held by, the person empowered to sign the certificate.

The above-mentioned declaration and certificate shall be presented in the language or languages accepted in the Member State in which the product is to be used.

ZA.2.2.2 In case of products following Tables ZA.3.2 or ZA.3.3

When compliance with the conditions of this annex is achieved, and once the notified body has drawn up the certificate mentioned below, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity, which entitles the manufacturer to affix the CE marking. This declaration shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and the place of production,

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking,

NOTE 2 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

— provisions to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT report(s) and factory production control records (if appropriate),

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions),

— the number of the accompanying factory production control certificate, and FPC records, where applicable,

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The declaration shall be accompanied by a factory production control certificate, drawn up by the notified body, which shall contain, in addition to the information above, the following:

— name and address of the notified body,

— the number of the factory production control certificate,

— conditions of validity of the certificate, where applicable,

— name of, and position held by, the person empowered to sign the certificate.

The above-mentioned declaration and certificate shall be presented in the language or languages accepted in the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol affixed shall be in accordance with Directive 93/68/EC. The CE marking symbol, the number of the EC product certificate or certificate of factory production control and the information required by Clause 8 (except 8a) shall be shown on a label attached to the product.

The CE marking symbol shall also appear on the accompanying technical documentation, together with the following:

— identification number of the certification body;

— name or identifying mark and registered address of the producer;

— the last two digits of the year in which the marking is affixed;

— the number of the EC product certificate or certificate of factory production control;

— reference to this European Standard (EN 13967);

— a description of the product: the information required by Clause 8 (except 8a);

— the intended method of installation;

— information on the relevant characteristics in Table ZA.1, namely:

  — values and, where relevant, the class to declare for each relevant characteristic;

  — characteristics against which the “No performance determined” (NPD) option (or Class F for reaction to fire) is relevant.

The "No performance determined" (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements.

Figure ZA.1 gives an example of the information to be given on the accompanying commercial (technical) documentation.

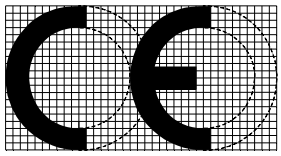 01234	*CE conformity marking, consisting of the "CE"-symbol given in Directive 93/68/EEC* *Identification number of the certification body*
AnyCo Ltd, PO Box 21, B-1050 **2011** 0123-CPD-00234	*Name or identifying mark and registered address of the producer* *Last two digits of the year in which the marking was affixed* *Certificate number*
EN 13967 Dampstop, 10 m x 1,6 m x 2 mm, Type A Reaction to fire: Class E Tensile properties: Longitudinal strength: 175 N/50 mm Transverse strength: 225 N/50 mm Longitudinal elongation: 150 % Transverse elongation: 100 % Resistance to static loading: Pass at 20 kg Watertightness: Pass at 60 kPa Durability Against ageing: Pass Against chemicals: Pass Resistance to impact: npd Tear resistance: npd Joint strength: 450 N/50 mm	*No. of European Standard* *Description of product* *and* *information on regulated characteristics*

Figure ZA.1 — Example CE marking information to be given on the accompanying commercial (technical) documentation

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE 1 European legislation without national derogations need not be mentioned.

NOTE 2 Affixing the CE marking symbol means, if a product is subject to more than one directive, that it complies with all applicable directives.

Bibliography

[1] Guidance paper F "*Durability and the Construction Products Directive"*, (89/106/EEC), 2004

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[3] Guidance paper H "*A harmonized approach to dangerous substances under the Construction Products Directive"*, (89/106/EEC), 2002

[4] Essential Requirements (ER) n° 3 "*Hygiene, health and environmental protection*" of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to constructions products (89/106/EEC)

[5] Essential Requirements (ER) nº 2 "*Fire safety*" of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to constructions products (89/106/EEC)

[6] EN ISO 9001, *Quality management systems — Requirements (ISO 9001)*

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