BS EN 13956:2012

BSI Standards Publication

Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics

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National foreword

This British Standard is the UK implementation of EN 13956:2012. It supersedes BS EN 13956:2005 which is withdrawn.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 sheets for roof waterproofing - Definitions and characteristics

Feuilles souples d'étanchéité - Feuilles d'étanchéité de toiture plastiques et élastomères - Définitions et caractéristiques

Abdichtungsbahnen - Kunststoff- und Elastomerbahnen für Dachabdichtungen - Definitionen und Eigenschaften

This European Standard was approved by CEN on 27 October 2012.

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Contents

Page

Foreword

This document (EN 13956:2012) 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of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.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 13956:2005.

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.

The main technical changes are:

— limitation of external fire performance to Class F;

— new extended mounting and fixing rules;

— introduction of indirect testing for factory production control.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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.

1 Scope

This European Standard specifies the definitions and characteristics of plastic and rubber sheets including sheets made out of their blends and alloys (thermoplastic rubber) for which the intended use is roof waterproofing. It specifies the requirements and test methods and provides for the evaluation of conformity of the products with the requirements of this European Standard.

NOTE For typical materials and applications, see Annex E.

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 495-5, *Flexible sheets for waterproofing — Determination of foldability at low temperature — Part 5: Plastic and rubber sheets for roof waterproofing*

EN 1107-2, *Flexible sheets for waterproofing — Determination of dimensional stability — Part 2: Plastic and rubber sheets for roof waterproofing*

CEN/TS 1187, *Test methods for external fire exposure to roofs*

EN 1297:2004, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water*

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

EN 1844, *Flexible sheets for waterproofing — Determination of resistance to ozone — Plastic and rubber sheets for roof waterproofing*

EN 1847, *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, *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 12310-2, *Flexible sheets for waterproofing — Determination of resistance to tearing — Part 2: Plastic and rubber sheets for roof waterproofing*

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

EN 12316-2, *Flexible sheets for waterproofing — Determination of peel resistance of joints — 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 12730, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to static loading*

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

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

EN 13501-5, *Fire classification of construction products and building elements — Part 5: Classification using data from external fire exposure to roof tests*

EN 13583, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of hail resistance*

EN 13948, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to root penetration*

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 following terms and definitions apply.

3.1
waterproofing
action to prevent the passage of water from one plane to another

3.2
roof waterproofing system
assembly of roof waterproofing components in its applied and jointed form, which has certain performance characteristics, to be assessed as a whole

3.3
roofing
waterproofing used in the roof of a building including roofs used for parking of vehicles and for roof gardens

3.4
flexible sheet for roof waterproofing
factory made waterproofing sheet, which can be rolled up or folded for easy transport to the site

3.5
sampling
procedure used to select or constitute a sample

3.6
sample
sheet from which a test piece is taken

3.7
test piece
part of the sample from which test specimens are taken

3.8
test specimen
piece of precise dimensions taken from the test piece

3.9
surface texture
textured pattern on one or both surfaces of the sheet creating a difference between the effective and overall thickness not exceeding 0,1 mm

3.10
surface profile (surface structure)
raised area on the surface of the sheet creating a difference between the effective and overall thickness exceeding 0,1 mm or a backing exceeding 80 g/m^2

3.11
internal fabric
layer of woven or non-woven fabric of synthetic or mineral fibres incorporated in the sheet

Note 1 to entry: This layer may or may not constitute reinforcement.

3.12
backing
layer of woven or non-woven fabric of synthetic or mineral fibres or other material fixed to the bottom of the sheet

Note 1 to entry: This layer may or may not constitute reinforcement.

3.13
overall thickness
d
thickness of the sheet excluding any surface profile

3.14
effective thickness
d_{eff}
thickness of the sheet providing the waterproofing function including any surface texture or backing equal to or less than 80 g/m^2 but excluding any surface profile and backing greater than 80g/m^2

3.15
welding
process of jointing by softening the surfaces to be united, either by heat or with the aid of a solvent (solvent welding, solvent bonding), and then pressing the softened surfaces together

3.16
adhesive bonding
process of jointing by applying adhesives to the surfaces to be united or by applying an adhesive tape, and then applying pressure

3.17
hot bonding
process of bonding by vulcanising a non vulcanised rubber tape between the two sheets to be jointed by means of heat and pressure

3.18
manufacturer's limiting value
MLV
value stated by the manufacturer to be met during testing

Note 1 to entry: The MLV can be a minimum or a maximum value according to statements made under product characteristics of this European Standard.

3.19
manufacturer's declared value
MDV
value declared by the manufacturer accompanied by a declared tolerance

3.20
batch
amount of product continuously manufactured to the same specification

4 Roofing system related characteristics

Testing shall be carried out according to Table A.1.

5 Product characteristics

5.1 General

5.1.1 Where a tolerance is limited by this European Standard 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 European Standard shall be started within 1 month of delivery from the manufacturer.

5.2 General characteristics

5.2.1 Visible defects

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

5.2.2 Dimensions, tolerances and mass per unit area

The length, width, straightness and flatness shall be determined in accordance with EN 1848-2 and shall meet the requirements given in Table 1. The values for straightness and flatness only apply to sheets supplied in the form of rolls. The values for straightness and flatness do not apply to folded sheets.

Table 1 — Length, width, straightness and flatness requirements

Length:	The measured length shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie within –0 % and +5 %.
Width:	The measured mean width shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie within –0,5 % and +1 %.
Straightness:	The deviation of the straightness *g* shall not exceed 50 mm.
Flatness:	The deviation of the flatness *p* shall not exceed 10 mm.

Thickness and mass per unit area shall be determined in accordance with EN 1849-2, except that where the surface structure is caused by the inner layer, the mechanical thickness measurement method shall be applied and the result shall meet the requirements given in Table 2. Terms and definitions of this European Standard shall have priority over those given in EN 1849-2.

Table 2 — Thickness and mass per unit area requirements

Effective thickness:	Thickness of the sheet providing the waterproofing function including any surface texture but excluding any surface profile and backing greater than 80 g/m^2. The measured effective thickness shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie within – 5 % and + 10 %.
Single measurement:	Each single measurement value shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie within ± 10 %.
Mass:	The mass per unit area shall lie within the declared tolerance of the MDV. The tolerance of the MDV shall lie within – 5 % and + 10 %.

5.2.3 Watertightness

The watertightness shall be determined in accordance with EN 1928 using method B at an applied water pressure of 10 kPa (0,1 bar) and shall give a pass result.

5.2.4 Effects of liquid chemicals including water

Information on the effect of liquid chemicals on plastics and rubber is given in Annex C. When further information on resistance to liquid chemicals is required, tests shall be conducted according to EN 1847 at a temperature of 23 °C for 28 days.

5.2.5 Fire performance

5.2.5.1 External fire performance

The classification of the product in accordance with EN 13501-5 is limited to class F.

NOTE It is currently considered that there are no national requirements specific to flexible sheets for roof waterproofing alone on external fire performance. The external fire performance of a roof is dominated by its build up.

5.2.5.2 Reaction to fire

Where required, the product shall be tested and classified in accordance with EN 13501-1, Table 1. According to EN ISO 11925-2, the test is required to be undertaken on the exposed surface of the delivered flexible sheet (surface or edge exposure) free hanging without any substrate in one direction only, and 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 colours (including black, 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/m2) or any additional inorganic layer.

c) Test results from EN ISO 11925-2 for a given 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.

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 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 European Standard (the SBI test may be inappropriate for products covered by the European Standard). Pending results of such an investigation and discussions in the Fire Regulators Group, products covered by this European Standard are tested to EN ISO 11925-2.

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

5.2.6 Hail resistance

Where required, the hail resistance of the sheet shall be determined in accordance with EN 13583 and shall be greater than or equal to the manufacturer's limiting value (MLV).

5.2.7 Joint strength

Where required, the peel resistance of joints shall be determined in accordance with EN 12316-2. The peel resistance shall be greater than or equal to the manufacturer's limiting value (MLV). Where required, the shear resistance of joints shall be determined in accordance with EN 12317-2. The shear resistance shall be greater than or equal to the manufacturer's limiting value (MLV). If no result can be obtained due to too great an elongation, the grip distance may be reduced.

5.2.8 Water vapour properties

If necessary, the moisture resistance factor μ of plastic and rubber sheets may 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 within ± 30 %.

5.2.9 Tensile properties (strength and elongation)

The tensile properties for homogenous sheets and sheets with a non-woven inner layer (e.g. fibre glass mat) of less than or equal to 80 g/m^2 shall be determined in accordance with Method B of EN 12311-2. For all other sheets Method A of EN 12311-2 shall be used to determine tensile properties. The tensile force (Method A) or the tensile stress (Method B) shall be greater than or equal to the manufacturer's minimum limiting value (MLV) for the longitudinal and transverse direction of the sheet. The mean of the elongation at maximum tensile force (Method A) or the mean of the elongation at break (Method B) shall be greater than or equal to the manufacturer's limiting value (MLV) for the longitudinal and transverse direction of the sheet.

5.2.10 Resistance to impact

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

5.2.11 Resistance to static loading

Where required, the resistance to static loading of the sheet shall be determined in accordance with either method A or method B of EN 12730 and shall be greater than or equal to the manufacturer's limiting value (MLV). If method A is used, the depth of the penetrating tool shall not exceed 10 mm.

5.2.12 Tear resistance

Where required, the tear force shall be determined in accordance with EN 12310-2. The mean of the tear resistance (maximum tensile force of pre-cut test specimen) shall be greater than or equal to the manufacturer's limiting value (MLV) for the longitudinal and transverse direction of the sheet.

5.2.13 Resistance to root penetration

The resistance to root penetration shall only be determined for products used as root barriers. Where required, the resistance to root penetration determined in accordance with EN 13948 shall give a pass result.

5.2.14 Dimensional stability

Dimensional stability shall be determined in accordance with EN 1107-2. The mean of the dimensional change in length (ΔL) and width (ΔT) shall be less than or equal to the manufacturer's limiting value (MLV).

5.2.15 Foldability at low temperature

Foldability at low temperature shall be determined in accordance with EN 495-5. Only the top surface (the upper side of the sheet as used in-situ) shall be tested. The cold folding temperature shall be less than or equal to the manufacturer's limiting value (MLV).

5.2.16 Behaviour following exposure to UV radiation, elevated temperature and water

Where required, when the product is subjected to exposure according to EN 1297, the duration of exposure to UV shall be 1 000 h.

Following exposure, the change in visual aspects shall be determined according to EN 1297:2004, Annex B. Surface cracks according to EN 1297:2004, Table B.1, Grades 0, 1 and 2 will give a pass result for the visual examination. Grade 3 will give a fail result.

The purpose of testing in accordance to EN 1297 is to characterise the long-term ageing behaviour of plastic and rubber sheets. The test does not give results corresponding to the service conditions in practice. Results should only be used to compare products of similar thickness, construction and composition, and they cannot be used for general durability classification. The chosen exposure duration for artificial ageing in accordance to EN 1297 has no relevance to a real product lifetime.

NOTE Sheets passing ETAG 006 requirements are considered to comply with the criteria for behaviour following exposure to UV radiation, elevated temperature and water.

5.2.17 Resistance to ozone

Where required, the sheet shall be tested according to EN 1844 and the sheet shall show no cracks. This test is only required for sheets made of rubber materials.

5.2.18 Exposure to contact with bitumen

Where required, the behaviour of the sheet where it may come in contact with bitumen shall be determined in accordance with EN 1548. The sheet is compatible with bitumen if:

a) for sheets with an inner layer, the percentage loss in mass is less than or equal to 5 %;

b) for sheets without an inner layer or backing, the change in Young's Modulus is less than or equal to 50 %.

Results obtained by this test method from sheets without an inner layer or backing can be applied to sheets manufactured with same chemical formulation but having inner reinforcement layers or backing. The results obtained on a given thickness apply to any product of the same formulation with greater thickness. By

experience, sheets with a non-woven backing of at least 150 g/m^2 or equivalent, which prevents any contact of the waterproofing membrane with bitumen, are considered as bitumen compatible.

5.3 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 (see also [3] and [4]).

6 Evaluation of conformity

6.1 General

The compliance of the product with the requirements of this European Standard and with the stated values (including classes) shall be demonstrated by:

— initial type testing;

— factory production control by the manufacturer, including product assessment.

Test specimens shall be prepared from the sample taken in accordance with EN 13416.

For the purposes of testing, products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for all products within that same family (a product may be in different families for different characteristics).

6.2 Type testing

6.2.1 General

Initial type testing shall be performed to show conformity with this European Standard. Tests previously performed in accordance with the provisions of this European 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 relevant.

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 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, it is essential that EN ISO 9001 be applied in full and be made specific to the requirements of this European Standard.

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 manufacture declares performance. Control of the products is required either by direct or indirect control. Minimum frequencies of testing for factory production control are shown in Table B.1.

7 Product data sheet

The characteristics of the product, determined in accordance with the test methods specified in this European Standard, shall be listed in a technical data sheet. The technical data sheet shall give the following information:

a) product trade name and manufacturer's name;

b) origin/source of manufacture or traceable code;

c) type of application and roofing system (see also Table A.1);

d) results of tests (see also Table A.1) according to intended end use system where relevant;

e) certification mark, if any;

f) consumer information, e.g.

   1) restrictions concerning use

      where the product is not suitable for all installation conditions, it is essential that the manufacturer declare those installation conditions for which the product is suitable;

   2) restrictions storage;

   3) safety precautions during installation and disposal;

g) description of the product (e.g. type of base material, type of reinforcement, mass or thickness, type of surfaces).

An example of a product data sheet is shown in Annex D.

8 Marking, labelling and packaging

The following information shall be indicated on each roll and/or in the accompanying technical or commercial documentation:

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.

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

Annex A
(normative)

Applicability of characteristics

Table A.1 gives the relevant characteristics depending on the roofing system and/or regulatory requirements.

Table A.1 — Roofing system-related characteristics *(1 of 2)*

Clause	Testing for	Type of application/roofing system			
		Exposed sheets		Covered sheets	
		Adhered	Mechanically fastened	Gravel ballasted	Roof gardens, park decks or similar
5.2.1	Visible defects	+	+	+	+
5.2.2	Length	+	+	+	+
5.2.2	Width	+	+	+	+
5.2.2	Straightness	±	±	±	±
5.2.2	Flatness	±	±	±	±
5.2.2	Mass per unit area	+	+	+	+
5.2.2	Effective thickness	+	+	+	+
5.2.3	Water tightness	+	+	+	+
5.2.5.1	External fire performance	-	-	-	-
5.2.5.2	Reaction to fire	±	±	±	±
5.2.7	Joint peel resistance	±	+	-	-
5.2.7	Joint shear resistance	+	+	+	+
5.2.9	Tensile strength	+	+	+	+
5.2.9	Elongation	+	+	+	+
5.2.10	Resistance to impact	+	+	+	+
5.2.11	Resistance to static loading	-	-	+	+
5.2.12	Tear resistance	-	+	-	-
5.2.13	Resistance to root penetration	-	-	-	+ [a]
5.2.14	Dimensional stability	+	+	+	+
5.2.15	Foldability at low temperature	+	+	+	+
5.2.16	UV exposure (1 000 h)	+	+	-	-
5.2.4	Effects of liquid chemicals, including water	±	±	±	±
5.2.6	Hail resistance	±	±	-	-

Table A.1 *(2 of 2)*

Clause	Testing for	Type of application/roofing system			
		Exposed sheets		Covered sheets	
		Adhered	Mechanically fastened	Gravel ballasted	Roof gardens, park decks or similar
5.2.8	Water vapour properties	±	±	±	±
5.2.17	Resistance to ozone	+ [b]	+ [b]	+ [b]	-
5.2.18	Exposure to bitumen	±	±	±	±

Key

\+ Relevant.

\- Not relevant.

± Dependant on roofing system, material, climatic condition or regulatory requirement.

[a] For sheets used as root barriers in roof gardens only.

[b] For rubber sheets only.

Annex B
(normative)

Initial type test and frequencies of testing for factory production control

B.1 Type testing

Initial type testing is necessary for all characteristics, which are relevant in relation to the roofing system, material, climatic condition or regulatory requirement.

Initial type testing does not need to be repeated as long as the stated product properties remain valid.

For characteristics under 5.2.5.1 External fire performance and 5.2.13 Resistance to root penetration the type testing is a system test.

B.2 Testing for factory production control (FPC)

The minimum frequencies of testing for factory production control are given in Table B.1. All other relevant characteristics shall be controlled indirectly (e.g. by control of product composition).

Table B.1 — Frequencies of testing for FPC

Clause	Characteristic	Minimum frequencies of testing per			
		batch	week	month	year
5.2.1	Visible defects	1			
5.2.2	Width	1			
5.2.2	Straightness			1	
5.2.2	Flatness			1	
5.2.2	Effective thickness or mass per unit area	1			
5.2.9	Tensile strength		1 [a]		
5.2.9	Elongation		1 [a]		
5.2.12	Tear resistance				1 [a]
5.2.15	Dimensional stability				2 [b]

[a] Where a manufacturer is continuously producing numerous different sheets, which contain the same core (type and mass) and the same type of coating, the frequency of these tests, which relate essentially to the core, may be considered on the total number of these different sheets.

[b] Not necessary for sheets with non-woven glass mat carrier or composite reinforcement containing glass.

Annex C
(informative)

Information about chemical resistance

The best judgement about the long-term fitness for purpose of membranes under chemical environments is based on practical experience. Table C.1 describes the chemical resistance concerning common substances (where the behaviour of all synthetic membranes in the market is assumed to be equal). The judgement is based on the changes of mechanical performance but note that changes in colour are not considered. The statements are valid for room temperature (23 °C) with a typical test period of 28 days. It is the responsibility of the manufacturer to inform the customer about chemical resistance.

It is recognised that a large amount of data concerning the chemical resistance is available. The table shown here is based on:

– Kunststoff Handbuch Band II Polyvinylchlorid, Krekeler/Wick (Hsg.), Carl Hanser Verlag München, 1963,

– Kunststoff-Tabellen, Carlowitz, 4. Auflage, Carl Hanser Verlag München, 1995.

If detailed information or the behaviour concerning further substances is required, please refer to the original literature.

Table C.1 — Chemical resistance of plastic and rubber sheets *(1 of 2)*

Substance	Concentration %	Resistance
Inorganic acids		
Sulphuric acid	≤ 25	+
	> 25 and ≤ 98	Δ
	> 98	-
Sulphurous acid	≤ 6	+
Oleum		-
Nitric acid	≤ 5	+
	> 5 and ≤ 50	Δ
	> 50	-
Hydrochloric acid	≤ 10	+
	> 10	Δ

Table C.1 *(2 of 2)*

Organic acids		
Benzoic acid		+
Butyric acid		Δ
Acetic acid	≤ 10	+
	> 10	Δ
Oleic acid		Δ
Oxalic acid		+
Phenols		Δ
Phthalic acid		+
Tartaric acid, aqueous		+
Citric acid, aqueous		+
Inorganic bases		
Ammonium hydroxide, aqueous		Δ
Potassium hydroxide, aqueous		Δ
Sodium hydroxide	≤ 10	+
	> 10 and ≤ 50	Δ
	> 50	-
Organic bases		
Pyridine and derivates		Δ
Triethanolamin		Δ
Salt solutions		
Chlorides		+
Nitrates		+
Sulphates		+
Different substances		
Drinking water		+
Beer		+
Glycol		Δ
Soap solution		+
Liquid manure		Δ

Key

+ All polymeric materials are resistant.

Δ Not stable in all cases (see literature or to be checked).

- None of the polymeric materials are resistant.

Annex D
(informative)

Example of a product data sheet

Date and reference of this technical data sheet.

— Product trade name.

— Manufacturer/supplier.

— Origin /source of manufacturing.

— Type of application and roofing system (see Annex A).

— Product performance, see Table D.1[1)].

— Certification mark where relevant.

— Consumer information[2)].

— Description of product (e.g. type of base material, type of reinforcement, thickness).

Table D.1 — Information from testing (where relevant according to roofing system, see Table A.1) *(1 of 2)*

Clause	Characteristic	Test method	Unit	Tolerance	Expression of results	Value or statement
5.2.1	Visible defects	EN 1850-2			Pass	
5.2.2	Length	EN 1848-2	m	-0 % and +5 %	MDV	
5.2.2	Width	EN 1848-2	m	-0,5 % and +1 %	MDV	
5.2.2	Straightness	EN 1848-2	mm		MLV	≤
5.2.2	Flatness	EN 1848-2	mm		MLV	≤
5.2.2	Mass per unit area	EN 1849-2	kg/m^2	-5% and +10 %	MDV	
5.2.2	Effective thickness	EN 1849-2	mm	-5 % and +10 %[a]	MDV	
5.2.3	Water tightness	EN 1928 Method B	kPa		Pass	≥
5.2.5.1	External fire performance	CEN/TS 1187			In accordance with EN 13501-5	F

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

2) For example, restrictions concerning use and storage and safety precaution during installation and disposal.

Table D.1 *(2 of 2)*

Clause	Characteristic	Test method	Unit	Tolerance	Expression of results	Value or statement
5.2.5.2	Reaction to fire	EN 13501-1			EN 13501-1 (see Note in 5.2.5.2)	
5.2.7	Joint peel resistance	EN 12316-2	N/50 mm		MLV	≥
5.2.7	Joint shear resistance	EN 12317-2	N/50 mm		MLV	≥
5.2.9	Tensile strength	EN 12311-2	N/50 mm or N/mm^2		MLV	≥
5.2.9	Elongation	EN 12311-2	%		MLV	≥
5.2.10	Resistance to impact	EN 12691	mm		MLV	≥
5.2.11	Resistance to static load	EN 12730 Method B	kg		MLV	≥
5.2.12	Tear resistance	EN 12310-2	N		MLV	≥
5.2.13	Res. to root penetration [b]	EN 13948			Pass	
5.2.14	Dimensional stability	EN 1107-2	%		MLV	≤
5.2.15	Foldability at low temp.	EN 495-5	ºC		MLV	≤
5.2.16	UV exposure	EN 1297	Visual		Pass	
5.2.4	Liquid chem. incl. water [c]	EN 1847			See Annex C	
5.2.6	Hail resistance [d]	EN 13583	m/s		MLV	≥
5.2.8	Water vapour properties	EN 1931		±30%	MDV	
5.2.17	Resistance to ozone [e]	EN 1844			Pass	
5.2.18	Exposure to bitumen	EN 1548			Pass	

Key

[a] Single values within ± 10 %

[b] For sheets used as root barriers in roof gardens only

[c] On request only

[d] Where required

[e] Rubber materials only

Annex E
(informative)

Typical materials, structure of sheets and roofing systems

E.1 Typical materials

E.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, there are various materials, which can be different in their nature and way of manufacturing. In the following there are listed some typical materials for the individual groups. Other materials may be possible, because this European Standard should not hinder further development. For some materials short code designations have been established in the marketplace that differ from normative codes.

E.1.2 Plastics

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

E.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)

E.1.4 Thermoplastic rubbers

EA	Elastomeric alloys
MPR	Melt processible rubber
SEBS	Styrene ethylene butylene styrene
TPE	Thermoplastic elastomers, not cross-linked
TPE-X	Thermoplastic elastomers, cross-linked
TPS or TPS-SEBS	SEBS-copolymers
TPV	Thermoplastic rubber vulcanisate

E.2 Installation

Plastic and rubber sheets for roof waterproofing are normally installed as a single layer roof waterproofing membrane. The joints between sheets are often welded by the action of heat or solvent but they may also be sealed using adhesive or adhesive tape or in the case of rubber material hot bonded. In all cases, it is important that the sheets are jointed by the method recommended by the manufacturer.

The roof waterproofing sheet may be fastened to the substructure with adhesive, be mechanically fastened, or can be ballasted. The sheet has different requirements for each method of application and it is important that the manufacturer's advice is sought as to the suitability of the sheet for the application.

At perimeter details, it is normal to use special trims and these are often made from metal, which can be laminated with a material compatible with the main roof membrane, to enable the trim to be jointed to the main membrane.

However when the sheet is applied, it is important that the system can withstand the expected wind uplift forces. With mechanically fastened membranes fastenings can be varied to meet the exposure conditions.

With ballasted roofs, the membrane is loose laid, with only the perimeter being fastened, which allows for maximum movement of the substrate. The weight of the ballast (e.g. gravel or paving) has to provide the resistance to wind uplift forces. Separation layers are sometimes needed to prevent reaction between the insulation and the roof waterproofing sheet (see Figure E.1).

With ballasted roofs, the thermal insulation can be placed above the waterproofing membrane, avoiding the need for a separate vapour control layer and providing protection from mechanical damage. In these so called 'inverted roof' systems it is usual to provide a filter layer over the insulation to prevent fine particles from the ballast penetrating down to the membrane, where it could cause damage.

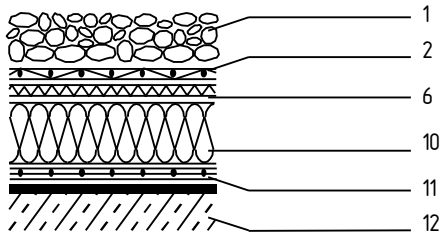
With mechanically fastened roof systems, the fastenings (usually screws with washer) are fixed through the roof waterproofing sheet and covered with another layer of sheet. This can conveniently be done where the sheet is jointed (see Figure E.3). Another way of fixing the sheet is to use fastenings anywhere on the sheet independent from the overlaps and then waterproofing the penetrations with cover strips.

Plastic and rubber roof waterproofing sheets can be incorporated into suitable designs for roof gardens (see Figure E.4).

With adhered plastic and rubber roof waterproofing, the membranes are often backed with a layer of other material (e.g. polyester fleece) in order to provide a good key for the adhesive, to help smooth out steps in the insulation and to allow for a degree of movement (see Figure E.5). With appropriate membranes these roof waterproofing sheets with backing can be applied as overlays to old bitumen roofs (see Figure E.6).

E.3 Typical roofing systems

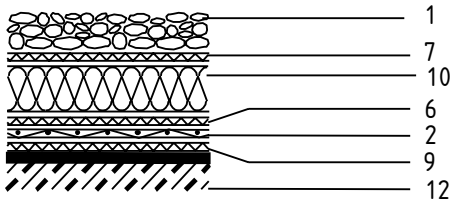
In the following figures, examples of the most common roofing systems are shown.



Key

1 gravel, 50 mm
2 roof waterproofing sheet
6 separation layer (if necessary)
10 thermal insulation
11 water vapour control layer
12 substrate

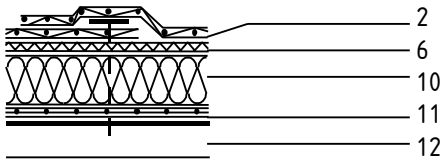
Figure E.1 — Gravel ballasted roof



Key

1 gravel, 50 mm
2 roof waterproofing sheet
6 separation layer (if necessary)
7 trickling filter
9 protection layer
10 thermal insulation
12 substrate

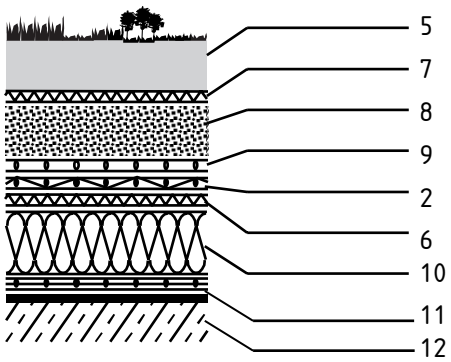
Figure E.2 — Gravel ballasted inverted roof



Key

2 roof waterproofing sheet
6 separation layer (if necessary)
10 thermal insulation
11 water vapour control layer
12 substrate

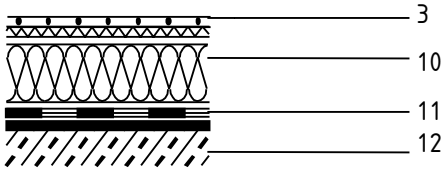
Figure E.3 — Mechanically fastened roof



Key

2 roof waterproofing sheet
5 garden substrate
6 separation layer (if necessary)
7 trickling filter
8 drainage and water storage
9 protection layer
10 thermal insulation
11 water vapour control layer
12 substrate

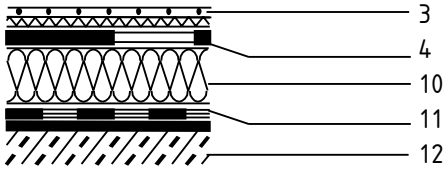
Figure E.4 — Roof garden



Key

3 roof waterproofing sheet with backing
10 thermal insulation
11 water vapour control layer
12 substrate

Figure E.5 — Adhered roof



Key

3 roof waterproofing sheet with backing
4 bitumen roof waterproofing sheet
10 thermal insulation
11 water vapour control layer
12 substrate

Figure E.6 — Adhered roof – re-roof

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of the EU Construction Products Directive

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/137given 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 web site 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 show the relevant clauses applicable.

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

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**
External fire performance	5.2.5.1	In accordance with EN 13501-5 or deemed to satisfy	To comply with regulatory requirements
Reaction to fire	5.2.5.2	Classes in accordance with EN 13501-1	To comply with regulatory requirements
Watertightness	5.2.3	-	Threshold value *)
Tensile properties	5.2.9	-	MLV
Root resistance	5.2.13	-	Threshold value*) Only for products used as root barriers in roof gardens
Resistance to static loading	5.2.11	-	MLV only for covered sheets
Resistance to impact	5.2.10	-	MLV only for covered sheets
Tear resistance	5.2.12	-	MLV only mechanically fastened
Joint strength	5.2.7	-	MLV
Durability	5.2.16	-	Threshold value*) only for exposed sheets
Foldability	5.2.15	-	MLV
Dangerous substances	5.3	-	See relevant note in ZA.1
- means that no classes or levels are specified 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 this case, 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 and 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 Procedure for attestation of conformity of plastic and rubber sheets

ZA.2.1 Systems of attestation of conformity

The systems 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 uses	Levels or classes	Attestation of conformity systems [a]
Plastic and rubber sheets	Roof waterproofing 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
	Roof waterproofing subject to external fire performance	EN 13501-5 for products requiring testing [(4)]	3
		Class F_{ROOF} products	4
	Roof waterproofing [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).

[(4)] All classes with exception of Class F_{ROOF}.

[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 roofing sheets have a requirement on roof waterproofing, all products covered by this standard come under attestation system 2+. In case of additional requirements on reaction to fire and/or external fire performance for these characteristics and the related parameters, depending on the classes attestation of conformity, systems 1, 3 or 4 shall apply additionally.

For different possible combinations of intended uses the tasks of the attestation of conformity procedure for plastic and rubber sheets in Table ZA.1shall be in accordance with Tables ZA.3.1 to ZA.3.6 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 roof waterproofing and system 1 for reaction to fire classes A1(1), A2(1), B(1), C(1) and system 3 for external fire performance (*)

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 relevant for the intended use	6.3
	Further testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except external fire performance	
	Initial type testing by a notified test lab		External fire performance of Table ZA.1	6.2
	Initial type testing by the manufacturer		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	6.2
Tasks under the responsibility of the product certification body	Certification of the conformity of the product on basis of:	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 all characteristics of Table ZA.1, relevant for the intended use, namely reaction to fire and watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely reaction to fire and watertightness	6.3

(*) All classes with exception of class F_{ROOF}.

Table ZA.3.2 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for roof waterproofing and system 1 for reaction to fire classes A1 (1), A2(1), B(1), C(1) and system 4 for external fire performance class F_{ROOF}

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 relevant for the intended use	6.3
	Further testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except external fire performance	
	Initial type testing by the manufacturer		All characteristics of Table ZA.1 relevant for the intended use except reaction to fire	6.2
Tasks under the responsibility of the product certification body	Certification of the conformity of the product on basis of:	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 all characteristics of Table ZA.1, relevant for the intended use, namely reaction to fire and watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely reaction to fire and watertightness	6.3

Table ZA.3.3 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for roof waterproofing and system 3 for reaction to fire classes A1[(2)], A2[(2)], B[(2)], C[(2)], D and E and system 3 external fire performance (*)

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 relevant for the intended use	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	
	Initial type testing by a notified test lab		reaction to fire classes A1[(2)], A2[(2)], B[(2)],C[(2)], D and E and external fire performance of Table ZA.1	6.2
	Initial type testing by the manufacturer		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	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, relevant for the intended use, namely watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely watertightness	6.3

(*) All classes with exception of class F_{ROOF}.

Table ZA.3.4 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for roof waterproofing and system 3 for reaction to fire classes A1[(2)], A2[(2)], B[(2)], C[(2)], D and E and system 4 for external fire performance class F_{ROOF}

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 relevant for the intended use	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	
	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 relevant for the intended use, 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, relevant for the intended use, namely watertightness	6.2
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely watertightness	6.2

Table ZA.3.5 — Assignment of evaluation of conformity tasks for plastic and rubber **sheets under system 2+ for roof waterproofing and system 4 for reaction to fire classes (A1 to E) [(3)] and F and system 3 for external fire performance (*)**

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 relevant for the intended use	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	
	Initial type testing by a notified test lab		External fire performance of Table ZA.1	6.2
	Initial type testing by the manufacturer		All characteristics of Table ZA.1 relevant for the intended use, except external fire performance	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, relevant for the intended use, namely watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely watertightness	6.3

(*) All classes with exception of class F_{ROOF}.

Table ZA.3.6 — Assignment of evaluation of conformity tasks for plastic and rubber sheets under system 2+ for roof waterproofing and system 4 for reaction to fire classes (A1 to E) [(3)] and F and system 4 for external fire performance class F_{ROOF}

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 relevant for the intended use	6.3
	Testing of samples taken at the factory		All characteristics of Table ZA.1 relevant for the intended use, except reaction to fire and external fire performance	
	Initial type testing by the manufacturer		All characteristics of Table ZA.1 relevant for the intended use	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, relevant for the intended use, namely: watertightness	6.3
		Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1, relevant for the intended use, namely: 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 or ZA.3.2

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. It includes the inspection and surveillance of factory production control for all characteristics of the product and entitles the manufacturer to affix the CE marking. The certificate shall include:

— 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 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, ...),

— 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) including the following:

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

NOTE 2 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,

— name and address of the notified test laboratory for external fire performance as given in Table ZA.3.1

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

NOTE 3 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 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.3.3 to ZA.3.6

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.

— name and address of the notified test laboratory for external fire performance or reaction to fire as given in Tables ZA.3.3 to ZA3.5

— 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 to affix shall be in accordance with Directive 93/68/EEC. The CE marking symbol, the name of the manufacturer, the last two digits of the year, 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 commercial (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 13956) with the issue date;
- a description of the product: the information required by Clause 8 (except 8a)), type of carrier, type of coatings, type of surfacing, and 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 or Class F_{ROOF} for external fire performance) 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.

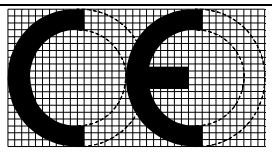
 01234	*CE conformity marking, consisting of the “CE”-symbol given in Directive 93/68/EEC* *Identification number of the FPC certification body*
AnyCo Ltd, PO Box 21, B-1050 **12** 0123-CPD-00234	*Name or identifying mark and registered address of the producer* *Last two digits of the year in which the marking was affixed* *Certificate number*
EN 13956:2012 2 m x 30 m x 1,2 mm PVC with synthetic fabric as reinforcing material. Exposed application: mechanically fastened roof External fire performance: F_{ROOF} (t1) Reaction to fire: Class E Watertightness: Pass Tensile strength in longitudinal direction:600 N/50 mm Tensile strength in transverse direction: 600 N/50 mm Elongation: 15% Resistance to impact: 700 mm Resistance to static loading: 20 kg Tear resistance: 180 N Joint peel resistance: 450 N/50 mm Joint shear resistance: 600 N/50 mm Root resistance: NPD Foldability at low temp: -30 °C Durability: Pass	*No. of European Standard with issue date* *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".

[2] Guidance paper D "CE marking under the Construction Products Directive".

[3] Guidance paper H "A harmonized approach to dangerous substances under the Construction Products Directive".

[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] Commission Decision 2000/553/EC, of 6 September 2000, implementing Council Directive 89/106/EEC as regards the external fire performance of roof coverings (notified under document number C (2000) 2266); Official Journal L 235, 19/09/2000p. 0019-0022.

[6] EN ISO 9001 *Quality management systems - Requirements (ISO 9001).*

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