SLOVENSKI STANDARD
kSIST FprEN 13583:2011

01-december-2011

Hidroizolacijski trakovi - Bitumenski, polimerni in elastomerni trakovi za tesnjenje streh - Ugotavljanje odpornosti proti toči

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of hail resistance

Abdichtungsbahnen - Bitumen-, Kunststoff- und Elastomerbahnen für Dachabdichtungen - Bestimmung des Widerstandes gegen Hagelschlag

Feuilles souples d'étanchéité - Feuilles bitumineuses, plastiques et élastomériques d'étanchéité de toiture - Détermination de la résistance à l'impact de la grêle

Ta slovenski standard je istoveten z: **FprEN 13583**

ICS:

91.060.20	Strehe	Roofs
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

kSIST FprEN 13583:2011 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

FINAL DRAFT
FprEN 13583

October 2011

ICS 91.100.50

Will supersede EN 13583:2001

English Version

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of hail resistance

Feuilles souples d'étanchéité - Feuilles bitumineuses, plastiques et élastomériques d'étanchéité de toiture - Détermination de la résistance à l'impact de la grêle

Abdichtungsbahnen - Bitumen-, Kunststoff- und Elastomerbahnen für Dachabdichtungen - Bestimmung des Widerstandes gegen Hagelschlag

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 254.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN members are the national standards bodies of 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 and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (FprEN 13583:2011) has been prepared by Technical Committee CEN/TC 254 “Flexible sheets for waterproofing”, the secretariat of which is held by NEN.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 13583:2001.

1 Scope

This European Standard specifies the determination of the resistance of flexible sheets for roofing to hail using a test for puncture by simulated hail.

This European Standard may also be applied for waterproofing.

2 Normative references

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

EN 826, *Thermal insulating products for building applications — Determination of compression behaviour*

EN 1849-1, *Flexible sheets for waterproofing — Determination of thickness and mass per unit area — Part 1: Bitumen 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*

prEN 10025-2:2011, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels* [1)]

EN 13163, *Thermal insulation products for buildings — Factory made products of expanded polystyrene (EPS) — Specification*

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

EN 13956:2005, *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

ISO 6344-1:1998, Coated abrasives — Grain size analysis — Part 1: Grain size distribution test

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13956:2005 and the following apply.

NOTE EN 13956:2005 gives the definitions for “sampling”, “sample”, “test piece”, “test specimen”.

3.1
surface
upper side of the sheet, as used in situ; it is usually the inside of the roll

3.2
damaging velocity
v_d
determined velocity of the ball rounded to the next integer in m/s, which has caused perforation in maximum 1 out of 5 shots

1) Under preparation.

3.3
test area
area of the test specimen inside the opening (200 ± 2) mm diameter of the ballast plate

4 Principle

The test specimen is shot on the surface by a plastic ball of defined material and size. The support is made of steel or expanded polystyrene. The velocity of the ball before impact can be varied. The ball can be shot in vertical direction or in horizontal direction.

5 Apparatus

The apparatus (see Figure 1) consists of parts indicated in 5.1 to 5.8.

5.1 Stable support; the apparatus and support shall be placed and installed in such a way that influences on the test results e.g. by spring effect will be avoided*.*

5.2 Pneumatic drive by which the velocity of the ball is controlled by the loading pressure which is shown by a manometer.

5.3 Photo cell/cells with time measuring device to measure the effective velocity of the ball within (± 0,5) m/s (see Figure 1) at a distance of (350 ± 50) mm from the surface of the test specimen.

5.4 Plastic ball made of polyamide (PA 6.6) with a mass of (38,5 ± 0,5) g, a diameter of (40,0 ± 0,5) mm and with a smooth and defect free surface.

5.5 Mounting device for the test specimen (see Figure 2) to allow hard or soft support.

5.6 Hard support which consists of a steel plate of (500 ± 2) mm × (300 ± 2) mm × (20,0 ± 0,5) mm as ground plate steel, specification according to prEN 10025-2:2011, steel grade S235, quality JR, on which sand paper is laid with the following specification (see Figure 2 a)):

- material: silicium-carbide;
- grain: P120 (ISO 6344-1:1998);
- carrier: C paper 135 g/m² – 145 g/m²;
- application of grain: electrostatic spread;
- binder: full synthetic resin bonded, water-resistant.

The sandpaper shall be placed (machine direction) crosswise to the machine direction of the roofing sheet specimen.

The steel plate shall have a temperature of (10 ± 2) °C.

5.7 Soft support which consists of a steel plate as described in 5.6 but without cooling on which an expanded polystyrene panel is laid with the following specifications (see Figure 2 b)):

- standard expanded polystyrene according to EN 13163;
- cut surfaces;
- size of (500 ± 2) mm × (250 ± 2) mm;
- thickness (20,0 ± 0,5) mm
- compressive stress CS(10) (≥ 100 kPa to ≤ 110 kPa) (EN 826).

5.8 Ballast steel plate of (500 ± 2) mm × (300 ± 2) mm × (20,0 ± 0,5) mm with a circular opening of (200 ± 2 mm) diameter in the centre (see Figure 2).

5.9 Device for the verification of a possible perforation (see Figure 3) with a testing area of at least 30 mm in diameter.

6 Sampling and preparation of test specimens

6.1 Sampling

Samples shall be taken in accordance with EN 13416.

6.2 Preparation of test specimens

The test specimens shall be taken from the whole width of the roll.

The test specimens are conditioned at least 24 h at (23 ± 2) °C and (50 ± 10) % relative humidity before the test.

7 Calibration

The test equipment for speed measurement has to be calibrated according to an appropriate method in a range from 10 m/s to 40 m/s.

8 Procedure

The test specimen is placed with the surface up on the support. The ballast plate with the opening of (200 ± 2) mm is put on top of the specimen. The test specimen has to cover the opening with an excess of at least 25 mm (Figure 2). The test area of the specimen is fully in contact with a cooling device e.g. melting ice, cool pack. The temperature of the cooling device shall be (0 ± 2) °C. After (3 min ± 30 s) the cooling device is removed from the test area and within (5 ± 2) s the test is conducted. The polyamide ball has to hit the surface of the test specimen in the centre of the test area.