SLOVENSKI STANDARD
SIST EN 1931:2001

01-december-2001

Hidroizolacijski trakovi - Bitumenski, polimerni in elastomerni trakovi za tesnjenje streh - Določevanje lastnosti pri prehodu vodne pare

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of water vapour transmission properties

Abdichtungsbahnen - Bitumen-, Kunststoff-, und Elastomerbahnen für Dachabdichtungen - Bestimmung der Wasserdampfdurchlässigkeit

Feuilles souples d'étanchéité - Feuilles d'étanchéité de toiture bitumineuses, plastiques et élastomeres - Détermination des propriétés de transmission de la vapeur d'eau

Ta slovenski standard je istoveten z: **EN 1931:2000**

ICS:

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

SIST EN 1931:2001 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1931

July 2000

ICS 91.100.50

English version

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 254 "Flexible sheets for waterproofing", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2001, and conflicting national standards shall be withdrawn at the latest by January 2001.

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

Introduction

This draft European Standard has been prepared by the Technical Committee CEN/TC 254 to determine the water vapour transmission properties of flexible sheets for waterproofing.

This standard has been prepared for applications in roofing but it may also be used in other areas where it is relevant.

This standard is intended for characterisation of flexible sheets for waterproofing as manufactured or supplied before use. This standard relates exclusively to products and not to waterproofing membrane systems composed of such products and installed in the works.

1 Scope

This European Standard specifies a method for the determination of the water vapour transmission properties and for the calculation of the density of moisture flow rate g and of the moisture resistance factor μ of waterproofing sheets. It is applicable to factory made bitumen, plastic and rubber sheets for roof waterproofing.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of these publications apply to this draft European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 13416:1998
Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Rules for sampling.

EN 12591
Bitumen and bituminous binders - Specifications of paving grade bitumen

3 Definitions

For the purpose of this standard, the following definitions apply.

	Symbol	Unit
3.1 Density of moisture flow rate: The mass of water vapour transmitted through a unit area of the sheet of specified thickness in a unit time under specified conditions of temperature and humidity, quantity defined by the following relation: $g = \frac{\Delta m}{A \times \Delta t}$ Where A is the exposed area of the test specimen in m² and Δt is the time interval between two corresponding weighings of the test assembly in s.	g	kg/(m².s)
3.2 Moisture permeance: Quantity defined by the following relation: $w_p = \frac{g}{(p_1 - p_2)}$ where p_1 and p_2 are ambient partial vapour pressures at the two faces of the specimen during the test.	w_p	kg/(m².s.Pa)
3.3 Moisture permeability: Quantity defined by the following relation: $\delta_p = w_p \times d$ where d is the thickness of the test specimen in m.	δ_p	kg/(m.s.Pa)
3.4 Moisture resistance factor: Quantity defined by the following relation: $\mu = \frac{\lambda_{ma}}{\delta_p}$ where λ_{ma} is the moisture conductivity of air and may be calculated as given under 9.1.	μ λ_{ma}	 kg/(m.s.Pa)
3.5 Water vapour diffusion-equivalent air layer thickness: Quantity defined by the following relation: $s_d = \mu \times d$ Where d is the thickness of the test specimen in m.	s_d	m

4 Principle

The test specimen is sealed to the open flange of a test cup containing a desiccant. The assembly is then placed in an atmosphere with a controlled temperature and humidity. When mass take-up is linear over a period of time, the assembly is weighed periodically to determine the density of moisture flow rate through the test specimen into the desiccant.

Due to the nature of the bitumen, plastic or rubber sheets concerned, the test procedure given in this standard consists of two methods:

4.1 Method A: test procedure for bitumen sheets.

4.2 Method B: test procedure for plastic or rubber sheets.

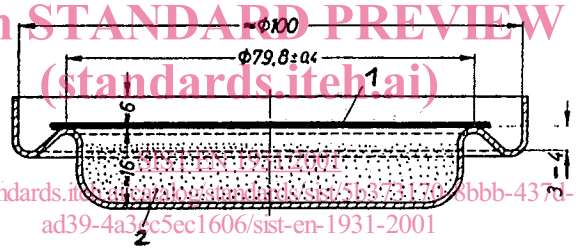
The technical content of the Standard is, where relevant, adapted to these parts accordingly (e.g. clause Preparation of test specimens).

5 Apparatus

5.1 Cups (Absorption atmosphere)

Use cups of pure, cold drawn aluminium of 1 mm thickness, which guarantee a free test area of 0,005 m² , total weight of specimen-mounted cup and desiccant must not exceed capability of the analytical balance used (accuracy ± 0,1 mg), as represented in figure 1.

Dimensions in millimetres



Key

1 Test specimen
2 Desiccant

Figure 1 - Aluminium cup with absorption atmosphere

5.2 Mechanical gauge to determine the thickness d of specimen to the nearest 0,05 mm.

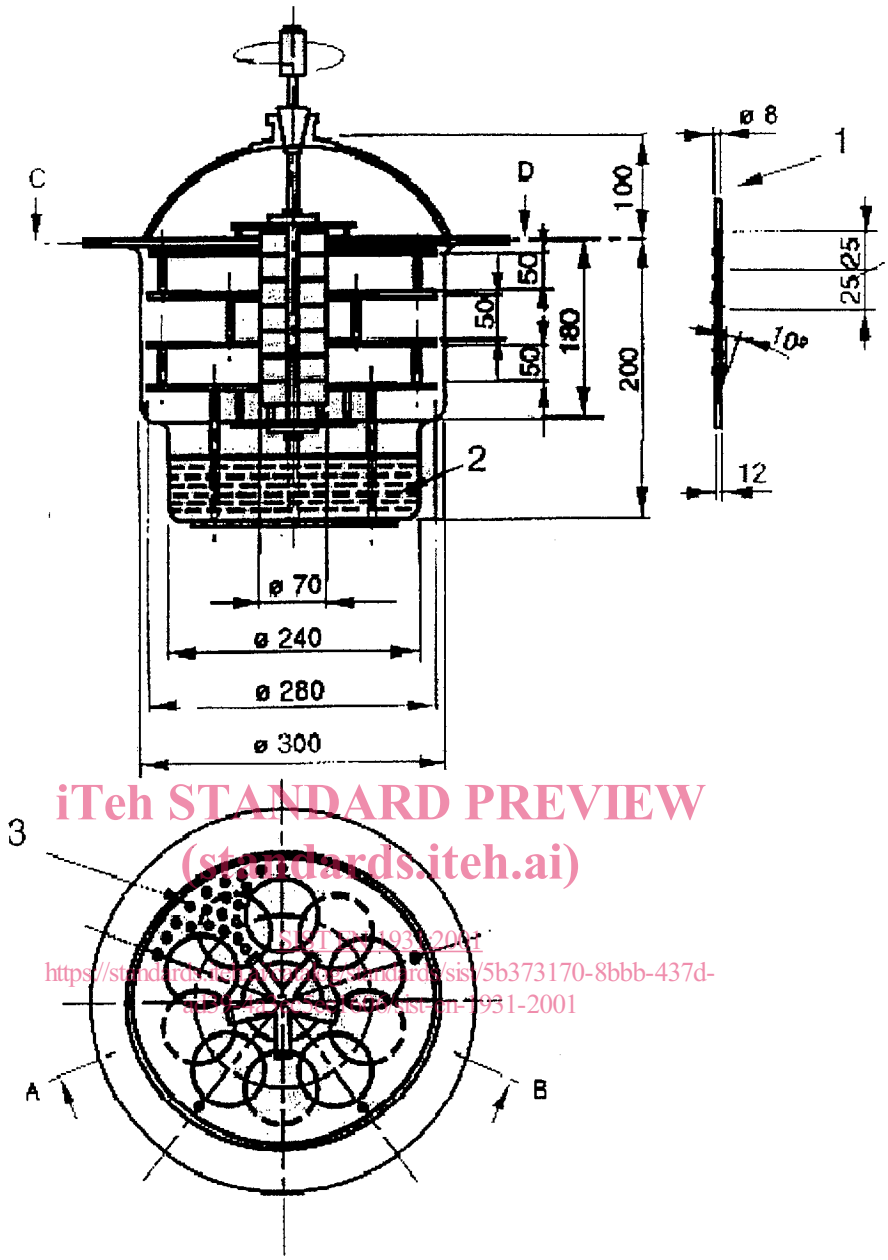
5.3 Analytical balance, capable of weighing the specimen-mounted cup (5.1) with an accuracy of ± 0,1 mg.

5.4 Constant-temperature, constant-humidity chamber capable of maintaining a relative humidity of (75 ± 2) % and a temperature of (23 ± 1)°C.

Alternatively, use a room or chamber that can be maintained at (23 ± 1)°C together with a desiccator containing a sodium chloride solution, saturated at 23 °C and containing a large excess of undissolved sodium chloride.

The relative humidity at the upper test specimen surface must be kept constant during test. An air movement of 0,02 m/s to 0,3 m/s in the vaporising atmosphere shall be produced by a propeller.

Dimensions in millimetres



Key

1 side view of the propeller with blades
2 saturated salt solution with remaining solid at the bottom
3 125 holes ∅ 8 per plate

Figure 2 - Evaporation atmosphere (example of installation; shown without cups)

5.5 Desiccator: for the transfer of test specimens.

5.6 Desiccant: Anhydrous calcium chloride with particles size of about 5 mm in diameter, free of fines that will pass a 600 µm sieve. The relative humidity in the cup atmosphere shall not exceed 1 %. During the test period the total mass increase of desiccant shall not be greater than 1,5 g per 25 cm^3.

5.7 Sealant: Sealing compound to create a vapour tight seal between the specimen and the cup (absorption atmosphere), e.g. extruded sealant, type Butyl or Polyisobutylene or bituminous binder, paving grade bitumen 35/50 according to EN 12591