# SLOVENSKI STANDARD

**SIST EN 544:2006**

**01-maj-2006**

**Nadomeģļ a:**

**SIST EN 544:1998**

---

**Bitumenske skodle, ojaļ ene z mineralnimi in/ali sintetiļ nimi materiali ï Specifikacije in preskusne metode**

Bitumen shingles with mineral and/or synthetic reinforcements - Product specification and test methods

Bitumenschindeln mit mineralhaltiger Einlage und/oder Kunststoffeinlage - Produktspezifikation und Prüfverfahren



Bardeaux bitumés avec armature minérale et/ou synthétique - Spécifications des produits et méthodes d'essai



**Ta slovenski standard je istoveten z:** **EN 544:2005**

---

**ICS:**

91.060.20

91.100.50

**SIST EN 544:2006** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 544

December 2005

ICS 91.100.50

Supersedes EN 544:1998

English Version

# Bitumen shingles with mineral and/or synthetic reinforcements - Product specification and test methods

Bardeaux bitumés avec armature minérale et/ou synthétique - Spécifications des produits et méthodes d'essai

Bitumenschindeln mit mineralhaltiger Einlage und/oder Kunststoffeinlage - Produktspezifikation und Prüfverfahren

This European Standard was approved by CEN on 14 October 2005.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.



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



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

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



Ref. No. EN 544:2005: E

# Contents

Page

# Foreword

This European Standard (EN 544:2005) has been prepared by Technical Committee CEN/TC 128 “Roof covering products for discontinuous laying and products for wall cladding”, the secretariat of which is held by IBN.

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 2006, and conflicting national standards shall be withdrawn at the latest by September 2007.

This European Standard supersedes EN 544:1998.

This European Standard 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 European Standard.

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

## Introduction

This European Standard specifies the properties, performance and methods of test of the finished bitumen shingles prior to them being laid on the roof.

It also includes rules for marking, labelling and provides a clause for evaluation of conformity.

This standard does not include design requirements, installation techniques and roof system performance.

The performance of a roof covering manufactured from these products depends not only on the properties of the product as specified in this standard, but also on the design, application and performance of the roof considered as a whole, in conjunction with the environment and conditions of use.

## 1 Scope

This European Standard applies to bitumen shingles where the watertightness of the system is ensured by overlapping, by different adhesive systems or a combination of these, according to manufacturer's installation instructions, intended to be laid as covering for pitched roofs and/or wall cladding.

This European Standard applies only to bitumen shingles with a mineral reinforcement, synthetic reinforcement or a mixture of the two.

This European Standard does not apply to bitumen shingles having a mass of bitumen less than 1 300 g/m$^2$.

## 2 Normative references

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

EN 1110, *Flexible sheets for waterproofing – Bitumen sheets for roof waterproofing – Determination of flow resistance at elevated temperature*

ENV 1187, *Test methods for external fire exposure to roofs*

EN 1297, *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 12039, *Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of adhesion of granules*



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

EN 12311-1, *Flexible sheets for waterproofing – Part 1: Bitumen sheets for roof waterproofing – Determination of tensile properties*

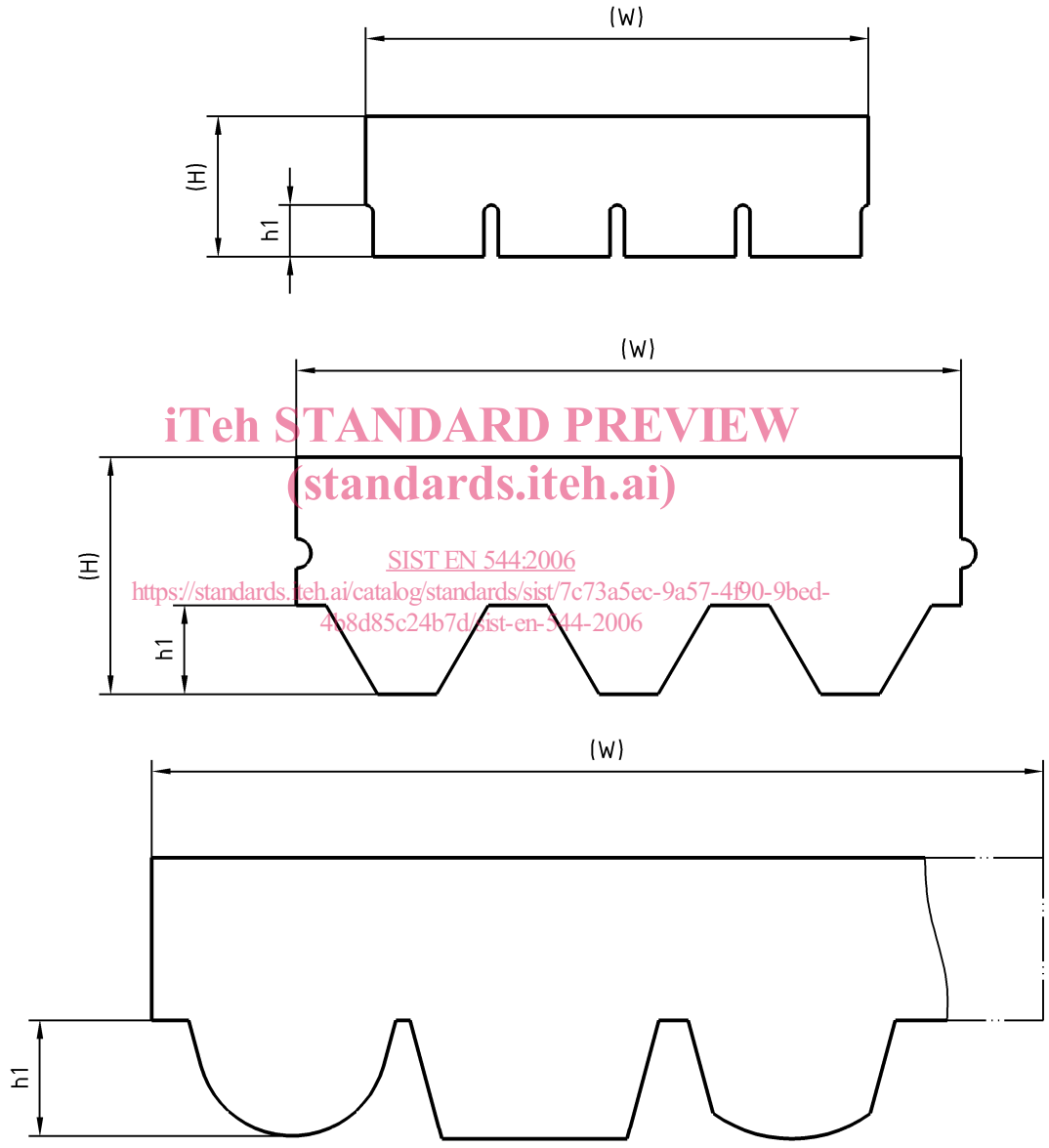
EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests*

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

## 3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

**3.1**
**shingle**
reinforced flat bitumen material, of a global rectangular shape, of width *W* and height *H*, having or not bitumen adhesive points or areas. This material has a solid part and several tabs. These tabs may be rectangular and separated by slits of height $h_1$ (see Figure 1)






**Key**

(H) Height
(W) Width
$h_1$ Height of slits

**Figure 1 — Different shapes of shingles**

**3.2**
**tab**
part of the flat material separated by slits and intended to be visible on the roof

**3.3**
**slit**
gap separating the tabs

**3.4**
**reinforcement**
substance incorporated into the bitumen material ensuring its dimensional stability and mechanical resistance

**3.5**
**impregnation**
saturation of the reinforcement by bitumen

**3.6**
**mass of bitumen**
bitumen or modified bitumen (in general all material soluble in the test described in 6.2) used for impregnation, coating and adhesive if any

**3.7**
**upperside surfacing**
factory-applied protection of the face of the material exposed to the weather provided by, for example, mineral granules, flakes of slate or a metal foil



**3.8**
**underside surfacing**
factory-applied protection of the concealed underside of the material, either continuous or discontinuous, by means of sand, talc, paper, plastic film or any other material



## 3.9 Adhesive system

**3.9.1**
**adhesive point; strip**
point, or continuous or discontinuous strip, intended to ensure the adhesion of the tabs after installation on the roof

**3.9.2**
**self adhesive area**
self-adhesive area intended to ensure adhesion of the tabs to the lower course of shingles to contribute to water tightness

**3.10**
**protection strip**
plastic film or non-adhesive paper intended to prevent the self-adhesive points or areas from sticking prior to being laid on the roof

**3.11**
**guiding tab or cuts**
small extension/indentations or cuts at the edge of the shingle to allow for proper alignment during application

**3.12**
**blister**
elevation of the surface of varied contour and dimensions, with a cavity beneath it

**3.13**
**production batch**
amount of product manufactured to the same specification within a maximum period of 24 h for each production line

**3.14**
**manufacturer's limiting value (MLV)**
value stated by the manufacturer to be met during testing. The manufacturer's limiting value can be a minimum or a maximum value according to statements made under product characteristics of this European Standard

# 4 Requirements

## 4.1 Materials

### 4.1.1 Mass of bitumen

The minimum mass of bitumen shall be 1300 g/m$^2$, when measured according to 6.2.

### 4.1.2 Upperside surfacing

The upperside surfacing shall be continuous, adhered to the bitumen and shall not reveal any bitumen which might spoil the appearance and durability of the product.



This upperside surfacing shall protect the bitumen from UV radiation.



### 4.1.3 Underside surfacing



Underside surfacing shall be such that the shingles may be removed individually from their packaging without being damaged.



## 4.2 Geometrical properties

### 4.2.1 Shapes

The overall dimensions ignoring any guiding tabs and indents, when measured according to 6.3, shall be as follows:

— Width *W* : maximum 1200 mm;

— Height *H* : minimum 250 mm.

The limit deviations on dimensions *W* and *H* (see Figure 1) declared by the manufacturers, measured in accordance with 6.3.2 and 6.3.3, shall be:

— ± 3 mm on width *W*;

— ± 3 mm on height *H*.

## 4.3 Mechanical properties

### 4.3.1 Tensile strength

Measured under the test conditions described in 6.4.1, the minimum tensile strength shall be as shown in Table 1.

**Table 1 — Minimum tensile strength**

| | |
|---|---|
| In the direction of the shingle width or direction of fabrication | 600 N / 50 mm |
| In the direction of the shingle height or perpendicular to the direction of fabrication | 400 N / 50 mm |

### 4.3.2 Nail shank tear resistance

Measured under the test conditions described in 6.4.2, the minimum value of the tear resistance shall be 100 N.

This requirement only applies to materials intended to be nailed.

## 4.4 Durability



### 4.4.1 Water absorption

Measured under the test conditions described in 6.4.3, the increase in mass shall be less than 2 % for each test piece.



### 4.4.2 Resistance to UV radiation

Measured under the test conditions described in 6.4.4, there shall be no cracking or fissuring.

### 4.4.3 Resistance to blistering

Resistance to blistering test is only relevant for shingles with other reinforcement than type 3, type 4, type 6 or type 7 (see 8.1).

Measured under the test conditions described in 6.4.5, there shall not be any blisters on the shingle surface.

### 4.4.4 Flow resistance at elevated temperature

Measured under the test conditions described in 6.4.6, the flow resistance shall be less than or equal to 2 mm for each test piece.

### 4.4.5 Adhesion of mineral granules or flakes of slate

Where the top surface of the shingle is protected with embedded mineral granules, the granule adhesion shall be determined in accordance with 6.4.7.

Each value shall be below the manufacturer's limited value (maximum value) and shall not exceed 2,5 g.