



# SLOVENSKI STANDARD

## SIST EN 15651-1:2010

01-maj-2010

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### Tesnilne mase za nekonstrukcijske stike v stavbah in na sprehajalnih površinah - 1. del: Tesnilne mase za fasade

Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 1:  
Sealants for facade elements

Fugendichtstoffe für nicht tragende Anwendungen in Gebäuden und Fußgängerwegen -  
Teil 1: Fugendichtstoffe für Fassadenelemente

Mastics pour joints dans la construction immobilière - Définitions, exigences et évaluation  
de la conformité - Partie 1: Mastics pour façades

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Ta slovenski standard je istoveten z: **EN 15651-1:2010**

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#### **ICS:**

91.060.10      Stene. Predelne stene.      Walls. Partitions. Facades  
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EUROPEAN STANDARD

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## Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 1: Sealants for facade elements

Mastics pour joints dans la construction immobilière -  
Définitions, exigences et évaluation de la conformité -  
Partie 1: Mastics pour façades

Fugendichtstoffe für nicht tragende Anwendungen in  
Gebäuden und Fußgängerwegen - Teil 1: Fugendichtstoffe  
für Fassadenelemente

This European Standard was approved by CEN on 29 January 2010.

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## Foreword

This document (EN 15651-1:2010) has been prepared by Technical Committee CEN/TC 349 "Sealants for joints in building construction", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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 includes an informative Annex A dealing with factory production control.

This document is one of the product European Standards within the framework series of EN 15651 on *Sealants for non-structural use in joints in buildings and pedestrian walkways*, as follows:

— *Part 1: Sealants for facade elements* (this document),

— *Part 2: Sealants for glazing*,

— *Part 3: Sealants for sanitary joints*,

— *Part 4: Sealants for pedestrian walkways*,

— *Part 5: Evaluation of conformity and marking*.

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

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**EN 15651-1:2010 (E)****1 Scope**

This European Standard specifies definitions and requirements for non-structural facade sealants intended for sealing exterior wall joints, window and door perimeter joints in building construction, including the interior face.

NOTE Provisions on evaluation of conformity (i.e. Initial Type Testing and Factory Production Control) and marking of these products are given in EN 15651-5.

This European Standard does not apply to non-structural sealants in any of non-paste form, to those used in internal walls and/or partitions and to oil-based mastics.

**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 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

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

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 15651-5, *Sealants for non-structural use in joints in buildings and pedestrian walkways — Part 5: Evaluation of conformity and marking*

EN 26927:1990, *Building construction — Jointing products — Sealants — Vocabulary (ISO 6927:1981)*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2004)*

EN ISO 7389, *Building construction — Jointing products — Determination of elastic recovery of sealants (ISO 7389:2002)*

EN ISO 7390, *Building construction — Jointing products — Determination of resistance to flow of sealants (ISO 7390:2003)*

EN ISO 8339, *Building construction — Sealants — Determination of tensile properties (Extension to break) (ISO 8339:2005)*

EN ISO 8340, *Building construction — Sealants — Determination of tensile properties at maintained extension (ISO 8340:2005)*

EN ISO 9046, *Building construction — Jointing products — Determination of adhesion/cohesion properties of sealants at constant temperature (ISO 9046:2002)*

EN ISO 9047, *Building construction — Jointing products — Determination of adhesion/cohesion properties of sealants at variable temperatures (ISO 9047:2001)*

EN ISO 10563, *Building construction — Sealants — Determination of change in mass and volume (ISO 10563:2005)*

EN ISO 10590, *Building construction — Sealants — Determination of tensile properties of sealants at maintained extension after immersion in water (ISO 10590:2005)*

EN ISO 10591, *Building construction — Sealants — Determination of adhesion/cohesion properties of sealants after immersion in water (ISO 10591:2005)*

EN ISO 11358, *Plastics — Thermogravimetry (TG) of polymers — General principles (ISO 11358:1997)*

EN ISO 11600, *Building construction — Jointing products — Classification and requirements for sealants (ISO 11600:2002)*

EN ISO 11925-2, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2002)*

ISO 13640, *Building construction — Jointing products — Specifications for test substrates*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 26927:1990 and the following apply.

#### 3.1 non-reactive sealant

mainly physical drying mechanism, without significant change in the molecular weight of the main polymer

#### 3.2 reactive sealant

mainly curing by chemical reaction, with significant increase of the molecular weight of the main polymer

#### 3.3 cure

irreversible transformation of a sealant from a liquid or paste like state into a hardened or rubber like solid state

#### 3.4 uncured / wet

state of a sealant prior to the above transformation

### 4 Requirements

#### 4.1 Identification requirements and test methods

##### 4.1.1 Short description of the sealant

The short description of the non-structural sealant for facade elements shall include brand name, type (general chemical family), opaque or translucent, waterborne or solvent based or solvent free, reactive or non-reactive, and one or multi-component (e.g. waterborne acrylic opaque and one component, etc.).

The primer shall be stated for the substrate concerned, if relevant (name, chemical type, etc.).

**EN 15651-1:2010 (E)****4.1.2 Thermogravimetric test**

The test shall be carried out in accordance with EN ISO 11358 on the uncured or wet sealant, between 35 °C and 900 °C, temperature slope 10 °C/min, non-oxidative condition (e.g. nitrogen). A single sample shall be used for this test. A single specimen may be tested and there shall be no significant difference between the reference curve and derivative (profile).

In the case of a multi-component sealant, each component shall be evaluated (if relevant).

**4.1.3 Specific gravity**

The determination of the specific gravity shall be in accordance with EN ISO 1183-1, on the uncured or wet sealant, using Method A or Method B, depending on the type of sealant under test. The testing temperature shall be (23 ± 2) °C. At least three samples shall be tested. The method used and the mean value, recorded to two decimal places, shall be declared. The tolerance of the declared values shall be within ± 5 %.

In the case of a multi-component sealant, each component shall be evaluated.

**4.1.4 Indentation hardness (Shore hardness)**

The determination of the indentation hardness shall be in accordance with EN ISO 868. The test shall be performed on the cured or dried sealant.

The exact conditions of test shall be defined by the manufacturer (i.e. thickness, cure/drying times and temperature and relative humidity, specific Shore type (A, D...), test time, temperature, etc.).

At least three samples shall be tested and five measurements taken per sample. The mean value and tolerances of all measurements, recorded to the nearest unit, shall be declared.

**4.2 Conditioning, test procedure and substrates**

When determining the classification of a facade sealant according to the requirements of this standard, the same conditioning procedure shall be used in all relevant test methods (Method A or Method B conditioning shall be used for all relevant tests). For each test method, three test specimens for each substrate shall be tested. The same batch of sealant (and primer, if used) shall be used in all tests. The same substrates (material and surface finish) shall be used in all tests.

The specific test conditions shall be in accordance with Table 1.

**Table 1 — Specific test conditions**

	Test method	Classes of non-structural sealants for facade elements						
		25LM	25HM	20LM	20HM	12,5E	12,5P	7,5P
Elongation <sup>a</sup>	EN ISO 7389 EN ISO 8339 EN ISO 8340 EN ISO 10590	100 %	100 %	60 %	60 %	60 %	60 %	25 %
Amplitude	EN ISO 9046 EN ISO 9047	± 25 %	± 25 %	± 20 %	± 20 %	± 12,5 %	± 12,5 %	± 7,5 %
a The value of elongation is given as a percentage of the original width: $\text{elongation \%} = [(\text{final width} - \text{original width}) / (\text{original width})] \times 100 \%$								

Substrates to be used in all mechanical tests concerned shall be mortar M1 or M2 and/or anodised aluminium and/or glass, according to ISO 13640.



### 4.3 Performance requirements and test methods for non-structural sealants for facade elements

#### 4.3.1 General

Classes of non-structural sealants to be used for joints in facade elements in buildings are referred to as type F according to EN ISO 11600. A summary of the characteristics and classes, together with corresponding test methods for these characteristics shall be as given in Table 2.

NOTE Non-structural sealants for facade elements for interior application are covered by Table 2 when classified, or Table 4 when only used for interior application.

**Table 2 — Summary of classes for non-structural sealants for facade elements**

Characteristic	Class of sealant for facade elements							Method of test
	25LM	25HM	20LM	20HM	12,5E	12,5P	7,5P	
Elastic recovery (%)	≥ 70	≥ 70	≥ 60	≥ 60	≥ 40	< 40	< 40	EN ISO 7389
Resistance to flow (mm)	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	See 4.3.3
<b>Tensile properties</b>	<b>STANDARD PREVIEW</b>							
1) Secant modulus (MPa)	≤ 0,4 (23 °C) and ≤ 0,6 (- 20 °C)	> 0,4 (23 °C) or > 0,6 (- 20 °C)	≤ 0,4 (23 °C) and ≤ 0,6 (- 20 °C)	> 0,4 (23 °C) or > 0,6 (- 20 °C)	—	—	—	EN ISO 8339
2) Elongation at break (%)	—	—	—	—	—	≥ 100 (23 °C)	≥ 25 (23 °C)	
Tensile properties at maintained extension	NF	NF	NF	NF	NF	—	—	EN ISO 8340
Adhesion/cohesion at variable temperatures	NF	NF	NF	NF	NF	—	—	EN ISO 9047
Adhesion/cohesion at maintained extension after water immersion	NF	NF	NF	NF	NF	—	—	EN ISO 10590
Loss of volume (%)	≤ 10 ≤ 25 <sup>a</sup>	≤ 10 ≤ 25 <sup>a</sup>	≤ 10 ≤ 25 <sup>a</sup>	≤ 10 ≤ 25 <sup>a</sup>	≤ 30	≤ 25	≤ 25	EN ISO 10563
Adhesion/cohesion at constant temperature	—	—	—	—	—	NF	NF	EN ISO 9046
Adhesion/cohesion after water immersion: - Elongation (%) at 23 °C	—	—	—	—	—	≥ 100	≥ 25	EN ISO 10591
a) Water-based dispersion sealants. NF = No Failure according to EN ISO 11600								