

**SLOVENSKI STANDARD**  
**oSIST prEN ISO 10563:2015**  
**01-november-2015**

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**Stavbe in gradbeni inženirski objekti - Tesnilne mase - Ugotavljanje spremembe mase in prostornine (ISO/DIS 10563:2015)**

Buildings and civil engineering works - Sealants - Determination of change in mass and volume (ISO/DIS 10563:2015)

Hochbau - Fugendichtstoffe - Bestimmung der Änderung von Masse und Volumen (ISO/DIS 10563:2015)

Construction immobilière - Mastics - Détermination des variations de masse et de volume (ISO/DIS 10563:2015)

**Ta slovenski standard je istoveten z: prEN ISO 10563**

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**ICS:**

91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials
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**oSIST prEN ISO 10563:2015**

**en**



# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 10563

ISO/TC 59/SC 8

Secretariat: SAC

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### Buildings and civil engineering works — Sealants — Determination of change in mass and volume

*Construction immobilière — Mastics — Détermination des variations de masse et de volume*

ICS: 91.100.50

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#### ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 8, *Sealants*.



# Buildings and Civil Engineering Works — Sealants — Determination of change in mass and volume

## 1 Scope

This International Standard specifies a method for the determination of the change of mass and the change of volume of self levelling and non sagging sealants used in joints in building construction.

**Note:** this test procedure is not intended to determine the absolute maximum value of loss of volume of a tested sealant, but it is an indicative measurement of the loss of volume under specified parameters.

## 2 Normative reference

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.

ISO 6927, *Buildings and civil engineering works — Sealants — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6927 apply.

## 4 Principle

Test specimens consist either in metal rings filled with non sagging sealant, or in metal moulds filled with self levelling sealant. The rings or moulds are weighed in air and in water, before and after filling, before and after specific conditioning. The change in mass and in volume of the tested sealant is calculated.

## 5 Apparatus and materials

### 5.1 Rings of non-corrosive metal for non sagging sealant

Having the following dimensions: inner diameter,  $(30 \pm 1)$  mm; height,  $(10 \pm 0.1)$  mm. A hook or loop is fixed to each ring to suspend it from a string for the weighing procedure.

### 5.2 Anti-adherent substrate for non sagging sealant

Used for the preparation of test specimens.

EXAMPLE: Wet paper.

### 5.3 Moulds of non-corrosive metal for self levelling sealant

Having the following dimensions: inner diameter,  $(30 \pm 1)$  mm; inner depth,  $(8 \pm 0.1)$  mm.

### 5.4 Balance

With an accuracy of 0,01 g, capable of being used to weigh the test specimens in air and immersed in test liquid.

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**5.5 Test liquid**

At a temperature of  $(23 \pm 2)^\circ\text{C}$ , consisting of water with the addition of up to 0.25 % (by mass) of a low-foam surfactant. In the case of water-sensitive sealants, laboratory grade 2.2.4-trimethylpentane (iso-octane) shall be used.

**5.6 Preconditioning chamber**

Capable of being controlled at  $(23 \pm 2)^\circ\text{C}$  and  $(50 \pm 10) \%$  relative humidity.

**5.7 Natural ventilated oven**

With a volume of  $(200 \pm 100)$  L, capable of being controlled at  $(70 \pm 2)^\circ\text{C}$ .

**5.8 Container**

For the immersion of the test specimens in the test liquid.

**6 Preparation of test specimens****6.1 For non sagging sealant**

The sealant and the metal rings (5.1) shall be brought to  $(23 \pm 2)^\circ\text{C}$ . Three test specimens shall be prepared for each property to be tested.

Each metal ring shall be weighed in air (mass  $m_1$ ) using the balance (5.4), and, for the volume test, also in the test liquid (5.5) (mass  $m_2$ ).

The rings shall be set on the anti-adherent substrate (5.2) and filled with the sealant to be tested using the following procedure.

- a) The formation of air bubbles shall be avoided.
- b) The sealant shall be pressed on the inner surfaces of the metal rings.
- c) The sealant surface shall be trimmed so that it is flush with the upper rim of the metal rings.
- d) The test specimens shall be removed immediately from the anti-adherent substrate such that the reverse side of the sealant is flush.
- e) The filled rings shall be weighed immediately in air (mass  $m_3$ ) and for the volume change also in the test liquid (mass  $m_4$ ). For water-borne sealants, these measurements shall be carried out after 60 min and shall be completed within 30 s.

**6.2 For self levelling sealant**

The sealant and the metal moulds (5.3) shall be brought to  $(23 \pm 2)^\circ\text{C}$ . Three test specimens shall be prepared for each property to be tested.

Each metal mould shall be weighed in air (mass  $m_1$ ) using the balance (5.4), and, for the volume test, also in the test liquid (5.5) (mass  $m_2$ ).

The moulds shall be filled with the sealant to be tested using the following procedure.

- a) The formation of air bubbles shall be avoided.
- b) The sealant should be allowed to rest for 10 minutes to allow any entrapped air to rise to the surface.



- c) The filled moulds shall be weighed immediately in air (mass  $m_3$ ) and for the volume change also in the test liquid (mass  $m_4$ ). For water-borne sealants, these measurements shall be carried out after 60 min (10 minutes degassing –see b) - + 50 minutes curing) and shall be completed within 30 s.

## 7 Test procedure

During the test procedure, the test specimens shall be positioned:

- either vertically for non sagging sealant,
- Or horizontally for self levelling sealant.

### 7.1 Preconditioning

The test specimens shall be conditioned in the chamber (5.6) at  $(23 \pm 2) ^\circ\text{C}$  and  $(50 \pm 10) \%$  relative humidity, during  $28 \text{ days} \pm 2 \text{ hours}$ .

### 7.2 Specific conditioning

After preconditioning according to 7.1, the test specimens are placed in the natural ventilated oven (5.7), with its closed flap, using the following procedure:

- a) In case of several tested sealants, only same chemical family sealants shall be placed in the oven in the same conditioning time;
- b) all test specimens shall be placed in the same shelf at mid height, in the oven;
- c) all test specimens shall be placed at a minimum distance of 8cm from the internal wall of the oven;
- d) each test specimens shall be placed at a minimum distance of 8cm from another test specimen;

Condition the test specimens in the natural ventilated oven regulated at  $(70 \pm 2) ^\circ\text{C}$ , during  $7 \text{ days} \pm 2 \text{ hours}$ . The door of the oven shall be maintained in a closed position, during the specific conditioning.

After the specific conditioning in the oven, the test specimens shall be stored in the chamber (5.6) at  $(23 \pm 2) ^\circ\text{C}$  and  $(50 \pm 10) \%$  relative humidity, during  $(24 \pm 2) \text{ hours}$ .

The test specimens shall be weighed immediately in air (mass  $m_5$ ) and, for the volume change, also in the test liquid (mass  $m_6$ ).

## 8 Calculation and expression of results

### 8.1 Change in mass

For each test specimen, the change in mass,  $\Delta m$ , expressed as a percentage, shall be calculated using the following equation, rounded to the nearest 0.1%:

$$\Delta m = \frac{m_5 - m_3}{m_3 - m_1} \times 100 \quad (1)$$

where

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$m_1$  is the mass, expressed in grams, of the metal ring or metal mould before filling with the sealant, measured in air (see Clause 6);

$m_3$  is the mass, expressed in grams, of the test specimen immediately after preparation, measured in air (see Clause 6);

$m_5$  is the mass, expressed in grams, of the test specimen immediately after conditioning, measured in air (see Clause 7.2).

The arithmetic mean of the change in mass of the three specimens shall be taken as the test result, rounded to the nearest 0.1 %.

## 8.2 Change in volume

For each test specimen, the change in volume,  $\Delta V$ , expressed as a percentage, shall be calculated using the following equation, rounded to the nearest 0.1%:

$$\Delta V = \frac{(m_5 - m_6) - (m_3 - m_4)}{(m_3 - m_4) - (m_1 - m_2)} \times 100 \quad (2)$$

where

$m_2$  is the mass, expressed in grams, of the metal ring before filling with the sealant, measured in the test liquid (see Clause 6);

$m_4$  is the mass, expressed in grams, of the test specimen immediately after preparation, measured in the test liquid (see Clause 6);

$m_6$  is the mass, expressed in grams, immediately after conditioning, measured in the test liquid (see Clause 7.2);

$m_1, m_3, m_5$  are defined in 8.1.

The arithmetic mean of the change in volume of the three specimens shall be taken as the test result, rounded to the nearest 0.1 %.

## 9 Test report

The test report shall include the following information:

- a) test laboratory's name and date of test;
- b) reference to this International Standard;
- c) name, type (chemical family) and colour of sealant;
- d) batch of sealant from which the test specimens were produced;
- e) individual values of the change in mass and/or volume for each test specimen;
- f) the arithmetic means of the change in mass and/or the change in volume for the tested sealant;
- g) any deviations from the specified test conditions.