



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 11127-3:2019**  
**01-oktober-2019**

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**Priprava jeklenih podlag pred nanašanjem barv in sorodnih premazov - Preskusne metode za nekovinske granulate za peskanje - 3. del: Ugotavljanje navidezne gostote (ISO/DIS 11127-3:2019)**

Preparation of steel substrates before application of paints and related products - Test methods for non-metallic blast-cleaning abrasives - Part 3: Determination of apparent density (ISO/DIS 11127-3:2019)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Prüfverfahren für nichtmetallische Strahlmittel - Teil 3: Bestimmung der scheinbaren Dichte (ISO/DIS 11127-3:2019)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Méthodes d'essai pour abrasifs non métalliques destinés à la préparation par projection - Partie 3: Détermination de la masse volumique apparente (ISO/DIS 11127-3:2019)

**Ta slovenski standard je istoveten z: prEN ISO 11127-3 rev**

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**ICS:**

25.220.10 Priprava površine Surface preparation

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## Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives —

### Part 3: Determination of apparent density

*Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Méthodes d'essai pour abrasifs non métalliques destinés à la préparation par projection —*

*Partie 3: Détermination de la masse volumique apparente*

ICS: 25.220.10

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## ISO/DIS 11127-3:2019(E)

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*.

This third edition cancels and replaces the second edition (ISO 11127-3:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- In [Clause 7](#) the procedure has been modified by allowing the pycnometer and water to stabilise to room temperature. The temperature of the test is recorded.
- The spelling of pycnometer has been corrected throughout the document
- [Annex A](#) has been technically and editorially revised.

A list of all parts in the ISO 11127 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives —

## Part 3: Determination of apparent density

### 1 Scope

This is one of a number of parts of ISO 11127 dealing with the sampling and testing of non-metallic abrasives for blast-cleaning.

The types of non-metallic abrasive and requirements on each are contained in ISO 11126.

The ISO 11126 and ISO 11127 series have been drafted as a coherent set of International Standards on non-metallic blast-cleaning abrasives. Information on all parts of both series is given in [Annex A](#).

This part of ISO 11127 specifies a method for the determination of the apparent density of non-metallic blast-cleaning abrasives.

### 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.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 11127-1, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 1: Sampling*

### 3 Terms and definitions

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

#### 3.1

##### **apparent density**

mass of a given volume of non-metallic abrasive, as determined by the pycnometer method described in this part of ISO 11127

### 4 Reagent

4.1 **Distilled or deionized water**, of at least grade 3 purity as defined in ISO 3696.

### 5 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

5.1 **Pycnometer**, Gay-Lussac type, of capacity 50 ml, with a capillary stopper.

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- 5.2 Oven**, capable of being maintained at a temperature of  $(110 \pm 5) ^\circ\text{C}$ .
- 5.3 Balance**, capable of weighing to an accuracy of 0,01 g.
- 5.4 Desiccator**, containing a desiccant such as dried silica gel impregnated with cobalt chloride.
- 5.5 Thermometer**, capable of measuring to an accuracy of  $1^\circ\text{C}$ .

**6 Sampling**

Take a representative sample of the product to be tested, as described in ISO 11127-1.

**7 Procedure**

- 7.1** Carry out the determination in duplicate.
- 7.2** Dry a sufficient quantity of the sample by heating it at  $(110 \pm 5) ^\circ\text{C}$  for 1 h. Allow to cool to room temperature in the desiccator (5.4).
- 7.3** Allow pycnometer and water to stabilise to room temperature for one hour.
- 7.4** Measure temperature of water using thermometer (5.5) ( $t$ )
- 7.5** Weigh the clean, dry pycnometer (5.1) to an accuracy of 0,01 g ( $m_1$ ), introduce into it approximately 10 g of the dried sample and reweigh ( $m_2$ ).
- 7.6** Add distilled or deionized water (4.1) to the pycnometer until it is completely filled. Replace the stopper and gently shake the pycnometer to displace air adhering to the test portion. Remove the stopper, fill with water and then replace the stopper, forcing excess water out through the capillary tube. Carefully dry the outside of the pycnometer. Ensure there are no air bubbles present. Reweigh the pycnometer and its contents ( $m_3$ ).
- 7.7** Empty the pycnometer of water and test portion, rinsing several times to remove all traces of abrasive. Refill with distilled or deionized water, replace the stopper and ensure there are no air bubbles present. Dry the outside of the pycnometer and weigh ( $m_4$ ).
- 7.8** Care shall be taken that the pycnometer is handled as little as possible in order to prevent warming by hand.

**8 Expression of results**

Calculate the apparent density,  $\rho_A$ , of the product tested, expressed in kilograms per cubic metre ( $\text{kg}/\text{m}^3$ ), using the equation

$$\rho_A = \frac{m_2 - m_1}{(m_4 - m_1) - (m_3 - m_2)} \times \rho_W \times 10^3$$

where



$m_1$  is the mass, in grams, of the pycnometer;

$m_2$  is the mass, in grams, of the pycnometer and test portion;

$m_3$  is the mass, in grams, of the pycnometer, test portion and water;

$m_4$  is the mass, in grams, of the pycnometer and water;

$\rho_W$  is the density, in kilograms per cubic decimetre, of water at the temperature ( $t$ ) of the determination.

If the duplicate determinations differ by more than 10 % (relative to the higher result), repeat the procedure described in [Clause 7](#).

Calculate the mean of two valid determinations and report the result to the nearest 100 kg/m<sup>3</sup>.

## 9 Test report

The test report shall contain at least the following information:

- a) all details necessary to identify the product tested, in accordance with the appropriate part of ISO 11126 (see [Annex A](#)), if applicable;
- b) a reference to this part of ISO 11127 (ISO 11127-3);
- c) the result of the test and the temperature ( $t$ );
- d) any deviation from the test method specified;
- e) the date of the test;
- f) the name of the person who carried out the test.

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## Annex A (informative)

### International Standards for non-metallic blast-cleaning abrasives

Requirements and test methods for non-metallic blast-cleaning abrasives are contained in ISO 11126 and ISO 11127, respectively.

ISO 11126 consists of the following parts under the general title:

*Preparation of steel substrates before application of paints and related products — Specifications for non-metallic blast-cleaning abrasives*

- *Part 1: General introduction and classification*
- *Part 3: Copper refinery slag*
- *Part 4: Coal furnace slag*
- *Part 5: Nickel slag*
- *Part 6: Iron and steel slags*
- *Part 7: Fused aluminium oxide*
- *Part 8: Olivine*
- *Part 9: Staurolite*
- *Part 10: Almandite garnet*

ISO 11127 consists of the following parts, under the general title:

*Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives*

- *Part 1: Sampling*
- *Part 2: Determination of particle size distribution*
- *Part 3: Determination of apparent density*
- *Part 4: Assessment of hardness by a glass slide test*
- *Part 5: Determination of moisture*
- *Part 6: Determination of water-soluble contaminants by conductivity measurement*
- *Part 7: Determination of water-soluble chlorides*
- *Part 8: Field determination of water-soluble chlorides<sup>1)</sup>*

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1) Under preparation