



SLOVENSKI STANDARD

oSIST prEN 12272-3:2021

01-september-2021

Površinske prevleke - Preskusne metode - 3. del: Ugotavljanje adhezivnosti veznega agregata s preskusno metodo udarjanja (preskusna metoda z Vialitovo ploščo)

Surface dressing - Test methods - Part 3: Determination of binder aggregate adhesivity by the Vialit plate shock test method

Oberflächenbehandlung - Prüfverfahren - Teil 3: Bestimmung des Adhäsionsvermögens von Bindemitteln und Gesteinskörnung mit dem Schlagprüfverfahren

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Enduits superficiels- Méthode d'essai - Partie 3: Détermination de l'adhésivité liants-granulats par mesure de la cohésion Vialit

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Ta slovenski standard je istoveten z: prEN 12272-3

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

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en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12272-3

July 2021

ICS 93.080.20

Will supersede EN 12272-3:2003

English Version

Surface dressing - Test methods - Part 3: Determination of binder aggregate adhesivity by the Vialit plate shock test method

Enduits superficiels- Méthode d'essai - Partie 3:
Détermination de l'adhésivité liants-granulats par
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Oberflächenbehandlung - Prüfverfahren - Teil 3:
Bestimmung des Adhäsionsvermögens von
Bindemitteln und Gesteinskörnung mit dem
Schlagprüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 227.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12272-3:2021) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12272-3:2003.

This document is one of a series of standards as listed below:

- EN 12272-1, *Surface dressing — Test methods — Part 1: Rate of spread and accuracy of spread of binder and chippings*
- EN 12272-2, *Surface dressing — Test methods — Part 2: Visual assessment of defects*
- EN 12272-3, *Surface dressing — Test methods — Part 3: Determination of binder aggregate adhesivity by the Vialit plate shock test method*

Annexes A, B, C and D are informative.

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prEN 12272-3:2021 (E)

Introduction

The adhesion between binder and chippings is the basis of successful surface dressing. It is important that this bond can be obtained, initially, at the moment of construction and be ensured in cool conditions when the adhesivity problems become dominant binder with damp or dry and dusty chippings. A knowledge of adhesivity enables the choice of a binder and aggregate type for minimum risk, especially for early and late season work.

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1 Scope

This document specifies, for anhydrous bituminous binder (fluxed bitumen or cut-back binders), the measurement of the binder aggregate adhesivity and the influence of adhesion agents or interfacial dopes and adhesion characteristics as an aid to design binder aggregate systems for surface dressing.

This document specifies methods of measurement of:

- the mechanical adhesion of the binder to the surface of the aggregate;
- the active adhesivity of the binder to the chippings;
- the improvement of the mechanical adhesion and active adhesivity by adding an adhesion agent either into the mass of the binder or by spraying the interface between binder and chippings;
- the wetting temperature of the binder to the aggregate;
- the variation of adhesivity below the fragility temperature.

The wetting capacity of the binder affects the adhesivity properties. With the presence of water, the wetting capacity of bitumen emulsion is naturally high. Even if mechanical adhesion and active adhesivity test methods are mainly dedicated to anhydrous bituminous binders (fluxed or cut-back binders), these measurements can also be practiced with bitumen emulsion with a personalized interpretation of the results that depends on the designer of the binder aggregate system. For bitumen emulsion, the conventional adhesivity is measured mainly through the water immersion test (EN 13614).

This test method is suitable for: **(standards.iteh.ai)**

- bituminous binders used for surface dressings (e.g. conventional or polymer modified binders, mainly anhydrous bituminous binders, fluxed or cut-back binders, bitumen emulsions);
- all the following aggregates sizes that can be used for surface dressings:
 - set 1: 2/5 mm, 5/8 mm, 8/11 mm and 11/16 mm; and
 - set 2: 2/4 mm, 2/6 mm, 4/6 mm, 4/8 mm, 6/10 mm, 6/12 mm and 10/14 mm.

It is not intended that this method be used on site for quality control.

NOTE Further information concerning the purpose of the test can be found in Annex D.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

prEN 12272-3:2021 (E)**3.1****active adhesivity**

necessary to bond damp chippings in their natural state

3.2**mechanical adhesion**

necessary to bond the dry chippings with their natural dust or fines making an inhibiting screen

3.3**wetting temperature**

lowest temperature of the binder on the plate, just prior to applying the chippings, at which the number of all the stained chippings either bonded to the plate or fallen, after the shock test, is at least 90 % of the chippings

3.4**fragility temperature**

lowest test temperature at which 90 % aggregates remain bonded to the plate

3.5**test temperature**

temperature at which the plates with the binder and the chippings are conditioned before the shock test

3.6**Vialit emulsion adhesivity**

necessary to bond chippings with bitumen emulsion

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Note 1 to entry: The results can be expressed with different treatments of chippings (washed or in their natural state).

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[38159010bfb/sist-pr-en-12272-3-2021](https://standards.iteh.ai/catalog/standards/sist/852dc8c5-4b2c-459b-9cda-38159010bfb/sist-pr-en-12272-3-2021)

4 Active adhesivity, mechanical adhesion and Vialit emulsion adhesivity**4.1 Description**

The required quantity of binder is heated to spraying temperature and spread evenly on a steel plate. The test is performed at (5 ± 1) °C for anhydrous binders and at room temperature for emulsions.

Graded chippings are laid down on the binder and rolled only if anhydrous bituminous binder is used. The prepared plate is turned over and put on 3-pointed supports.

A steel ball is made to fall 500 mm three times onto the plate within a 10 s period.

The adhesivity value is determined as the sum of the number of chippings remaining bonded to the plate and the number of fallen chippings which are stained by the binder.

If the chippings are treated chemically or washed on site, or an interfacial adhesion agent (dope) is used in construction, then this should be simulated in the test method. If polymer-modified binders are used which need special site conditions, e.g. road temperatures > 10 °C or heated chippings, the test should reflect these constraints and the report modified accordingly, e.g. increase temperature of chippings to 10 °C.

4.2 Apparatus

4.2.1 Flat steel plates (see Figure 1)

Flat steel plates with a rim of 2 mm to 3 mm height and with following dimensions:

- side (200 ± 1) mm \times (200 ± 1) mm;
- thickness $(2,0 \pm 0,2)$ mm.

The plates should be flat manufactured with a tolerance of 0,2 mm across the total length in any direction. The maximum tolerance after usage shall be 0,5 mm.

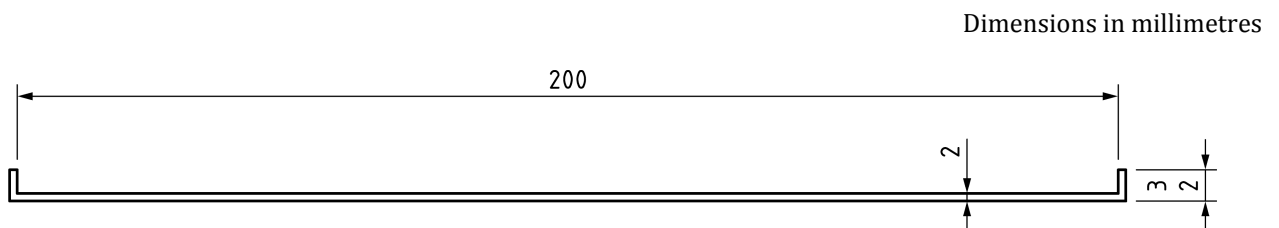


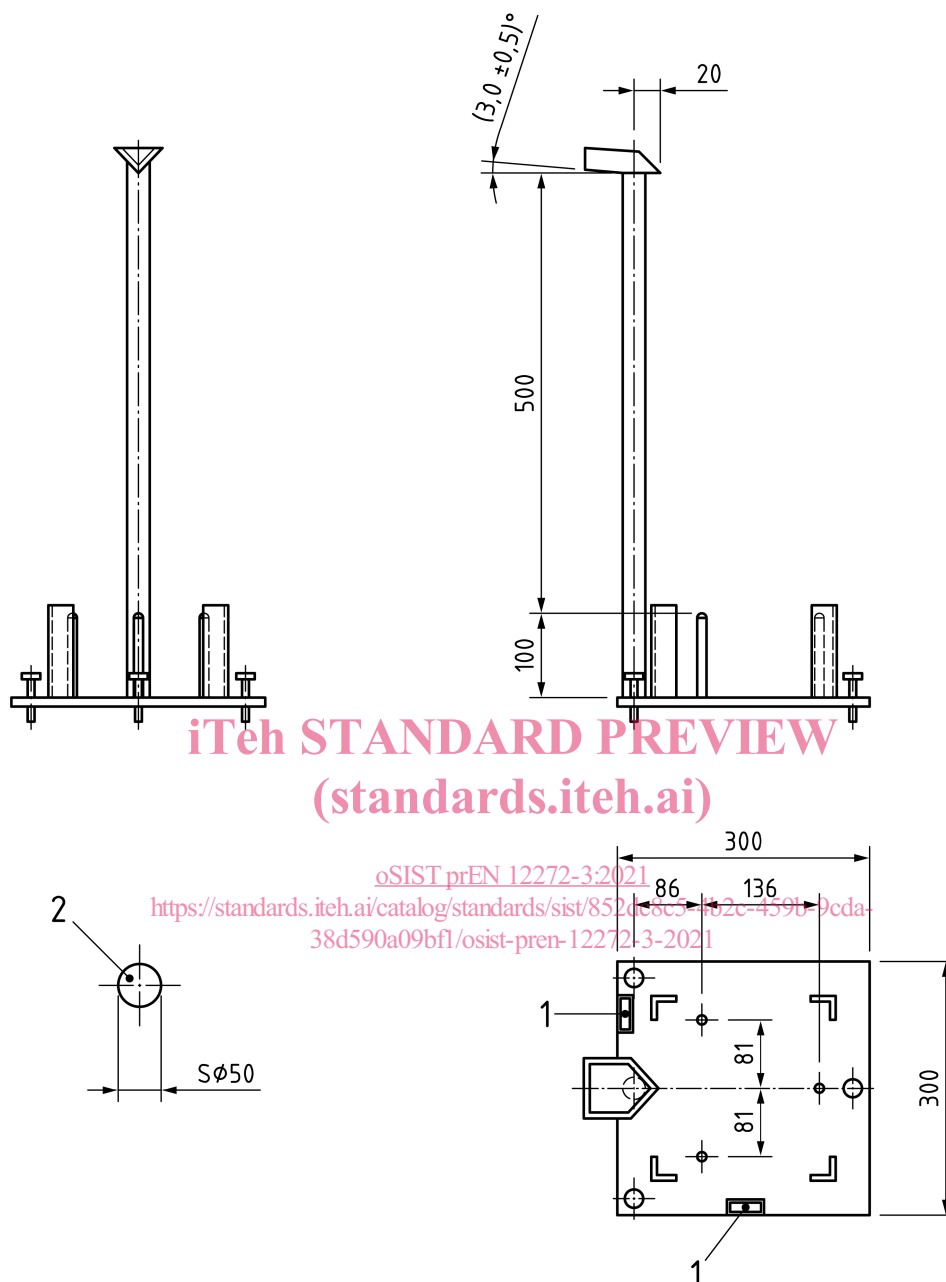
Figure 1 — Flat steel plate

4.2.2 3-pointed supports

A device composed of a rigid base with 3-pointed supports, a vertical support ending in a lightly angled slide $(3,0 \pm 0,5)^\circ$ to launch the ball, see Figure 2.

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Dimensions in millimetres

**Key**

- 1 level
- 2 ball

NOTE Tolerances ± 1 mm, except for:

- the supports: $\pm 0,2$ mm;
- the ball: $\pm 0,5$ mm.

Figure 2 — 3-pointed supports

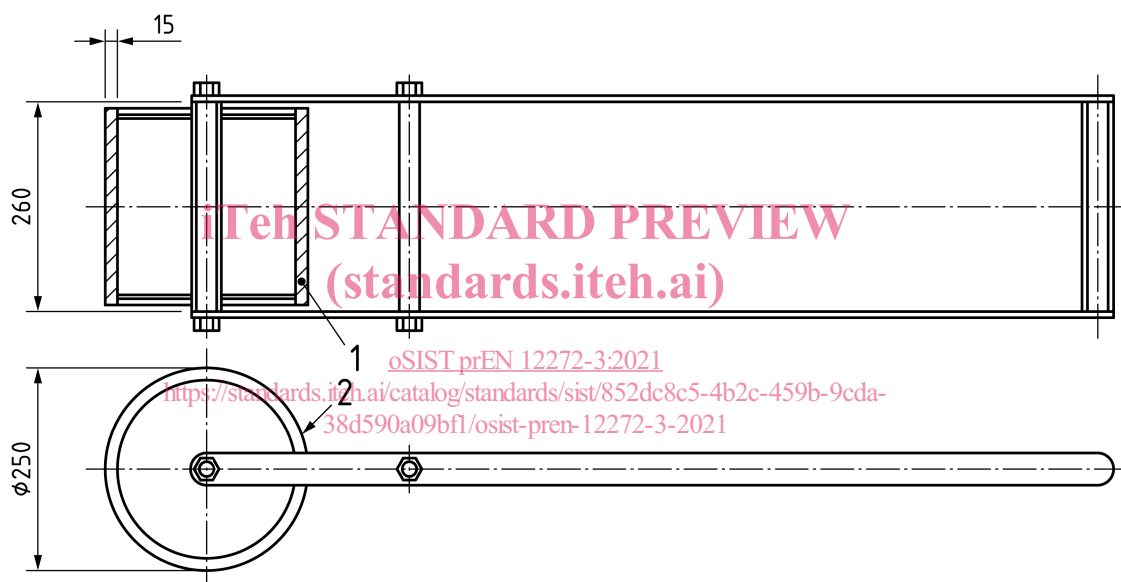
4.2.3 Steel ball

Mass (510 ± 10) g, diameter $(50,0 \pm 0,5)$ mm.

4.2.4 Rubber wheel roller (see Figure 3)

- Thickness of the hard rubber: (15 ± 2) mm;
- mass: (25 ± 1) kg;
- useful width: (260 ± 10) mm (see Figure 3);
- hardness of the rubber shall be Shore 40/150 in accordance with ISO 48-2.

Dimensions in millimetres



Key

- 1 rubber thickness (15 ± 2) mm
- 2 roller mass (25 ± 1) kg

Figure 3 — Rubber wheel roller

4.2.5 Sprayer

For applying adhesion agent (dope) as an interfacial layer between binder and chippings, if required.

4.2.6 Hygrometer

Accurate to 5 % at 90 % humidity.

4.2.7 Balance

Accurate to 0,1 g, range at least 1 000 g.