



SLOVENSKI STANDARD
oSIST prEN 12274-4:2016
01-junij-2016

**Tankoplastne prevleke po hladnem postopku - Preskusne metode - 4. del:
Ugotavljanje kohezije zmesi**

Slurry surfacing - Test methods - Part 4: Determination of cohesion of the mix

Dünne Asphaltsschichten in Kaltbauweise - Prüfverfahren - Teil 4: Bestimmung der Kohäsion von Schlämmen

Matériaux bitumineux coulés à froid - Méthode d'essai - Partie 4 : Détermination de la cohésion du mélange

[SIST EN 12274-4:2018](https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-692866680e09/sist-en-12274-4-2016)

[https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-](https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-692866680e09/sist-en-12274-4-2016)

[692866680e09/sist-en-12274-4-2018](https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-692866680e09/sist-en-12274-4-2016)

Ta slovenski standard je istoveten z: prEN 12274-4

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

oSIST prEN 12274-4:2016

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12274-4

April 2016

ICS 93.080.20

Will supersede EN 12274-4:2003

English Version

Slurry surfacing - Test methods - Part 4: Determination of cohesion of the mix

Matériaux bitumineux coulés à froid - Méthode d'essai
- Partie 4 : Détermination de la cohésion du mélange

Dünne Asphaltsschichten in Kaltbauweise -
Prüfverfahren - Teil 4: Bestimmung der Kohäsion von
Schlämmen

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.

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

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	3
1 Scope.....	4
2 Normative References.....	4
3 Terms and definitions.....	4
4 Principle.....	5
5 Materials.....	5
5.1 Coarse aggregates and fine aggregates.....	5
5.2 Reactive filler.....	5
5.3 Emulsion.....	5
6 Apparatus.....	5
6.1 Apparatus used for preparation of samples.....	5
6.2 Apparatus used for testing.....	7
6.2.1 Cohesion tester.....	7
6.2.2 Air supply, of 700 kPa.....	8
7 Calibration of test apparatus (Cohesion Tester).....	9
7.1 Materials.....	9
7.2 Procedure for calibration.....	10
8 Preparation of sample.....	10
8.1 Temperature.....	10
8.2 Water.....	10
8.3 Aggregates and filler.....	10
8.4 Water and additive.....	11
8.5 Preparation of the mix.....	11
8.6 Sample size.....	11
8.7 Curing.....	11
9 Test procedure.....	12
10 Expression of results.....	12
11 Test report.....	13
Bibliography.....	14

European foreword

This document (prEN 12274-4:2016) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12274-4:2003.

Compared with EN 12274-4:2003, the following changes have been made:

- a) The requirement for five samples for test has been removed, permitting the actual number to be determined in the producer's method statement. Precision for five and three samples is being evaluated.
- b) The temperature to facilitate drying has been increased from 100 °C to 110 °C.
- c) The rubber foot is now specified in terms of IRHD to ISO 48.
- d) The possibility of usage of automatic equipment added.
- e) Various Notes have been changed to standard text to clarify the requirements and improve precision.
- f) Assessment of the samples (uneven profile, loss of aggregate, etc.) is reported as this affects the result.
- g) Visual assessment of the samples after test is graded according to photographs that have been added.

This European Standard is one of a series of standards as listed below:

EN 12274-1, *Slurry surfacing — Test methods — Part 1: Sampling*

EN 12274-2, *Slurry surfacing — Test methods — Part 2: Determination of residual binder content including preparation of samples*

EN 12274-3, *Slurry surfacing — Test methods — Part 3: Consistency*

EN 12274-4, *Slurry surfacing — Test methods — Part 4: Determination of cohesion of the mix*

EN 12274-5, *Slurry surfacing — Test methods — Part 5: Determination of the minimum binder content and wearing resistance*

EN 12274-6, *Slurry surfacing — Test methods — Part 6: Rate of application*

EN 12274-7, *Slurry surfacing — Test methods — Part 7: Shaking abrasion test*

EN 12274-8, *Slurry surfacing — Test methods — Part 8: Visual assessment of defects*

prEN 12274-4:2016 (E)

1 Scope

This European Standard specifies a test method for determining the minimum cohesion of a slurry surfacing mixture, which enables the set time and trafficability time to be determined.

This European Standard applies to slurry surfacing (including microsurfacing) to be used in surface layers for roads, airfields and other trafficked areas.

2 Normative References

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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 6344-2, *Coated abrasives — Grain size analysis — Part 2: Determination of grain size distribution of macrogrits P12 to P220*

3 Terms and definitions

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

3.1 set

end of the non-reversible process in a slurry surfacing when the emulsion coalescence takes place

Note 1 to entry: The coalescence of an emulsion is the non-reversible phase starting from the beginning of the breaking of the emulsion to the total setting when the bitumen emulsion reverts to bitumen in presence of a mineral.

[https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-](https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-692866680c09/sist-pr-12274-4-2016)

[692866680c09/sist-pr-12274-4-2016](https://standards.iteh.ai/catalog/standards/sist/d5feed8a-2ff5-41db-8068-692866680c09/sist-pr-12274-4-2016)

Note 2 to entry: After the set of a slurry surfacing; it is not possible to stir the mixture; free emulsion during washing with water cannot be observed; and an absorbent paper is not stained when pressed slightly onto the surface of the slurry surfacing.

3.2 set time

time elapsed between placing a slurry surfacing and its setting

3.3 trafficability time

period of time after laying, when the slurry surfacing can accept traffic

3.4 quick setting slurry surfacing

slurry surfacing with a set time less than or equal to 30 min

3.5 slow setting slurry surfacing

slurry surfacing with a set time more than 30 min

4 Principle

Torque measurements are taken on samples of the same slurry surfacing mixture at suitable intervals after casting.

NOTE It has been demonstrated that in some cases 3 samples can be sufficient for a reliable test.

For some slurry surfacing mixtures the precision of the test is poor due to loss of aggregates or uneven surface profile. If this is the case a comment shall be made in the report.

5 Materials

5.1 Coarse aggregates and fine aggregates

A sufficient amount of the separated aggregates to be used in the slurry surfacing shall be dried in an oven at (110 ± 5) °C to reach constant mass. Wet aggregates may be used, preferably at their own natural moisture. In case of natural moisture, water content W is determined by drying in an oven at a temperature of (110 ± 5) °C until constant mass.

Constant mass shall be deemed to be achieved when the difference between successive weighings at 30 min intervals does not exceed 0,1 % of the mass.

5.2 Reactive filler

Reactive filler, e.g. cement or hydrated lime, shall be dried in an oven at (110 ± 5) °C to reach a constant mass.

Constant mass shall be deemed to be achieved when the difference between successive weighings at 30 min intervals does not exceed 0,1 % of the mass.

5.3 Emulsion

The emulsion shall be manually homogenized using a glass rod.

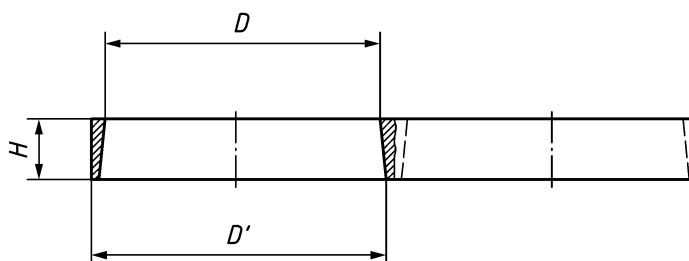
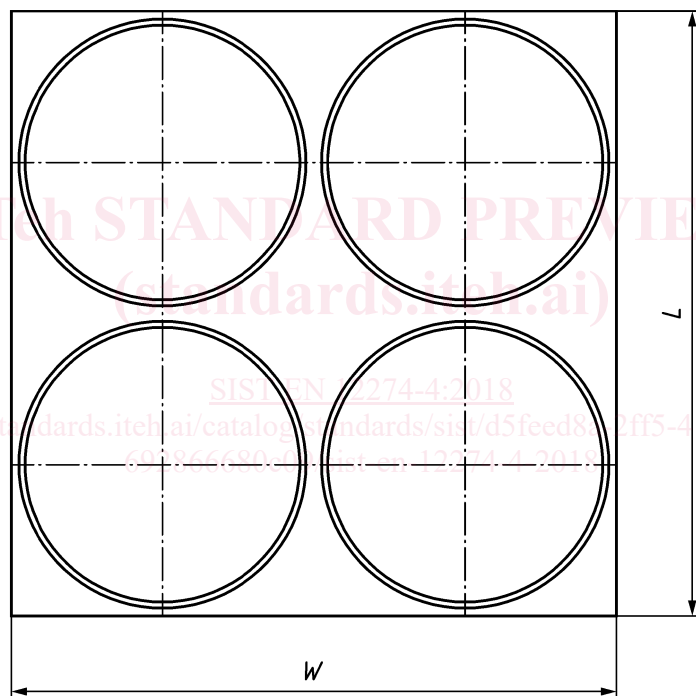
6 Apparatus

6.1 Apparatus used for preparation of samples

- a) **Oven**, with a suitable capacity capable of maintaining a temperature of (110 ± 5) °C.
- b) **Balance**, with an accuracy of 0,1 g.
- c) **Timing device**, with an accuracy of 1 s.
- d) **Metal square-shaped moulds**, having four circular holes (see Figure 1) of the dimensions given in Table 1.
- e) **End-rounded spatula or metal rod**.
- f) **Ladles or beakers**, of 1 L (litre) and 2 L capacity.
- g) **Roofing felt**, weight per unit area of (700 ± 70) g/m² for sample holder of the same dimensions as the square metal with moulds.

Table 1 — Dimensions of moulds

Moulds	Dimensions							
	Width (<i>W</i>) mm	Length (<i>L</i>) mm	Height (<i>H</i>) mm	Hole diameter mm		Tolerances mm		
				upper <i>D</i>	lower <i>D'</i>	(<i>W</i>),(<i>L</i>)	(<i>H</i>)	(<i>D</i> , <i>D'</i>)
Type A	140	140	6,3	90	90,6	±1 %	±1 %	±1 %
Type B	140	140	10,0	90	90,6			
Type C	200	200	13,0	90	90,6			
Type D	250	250	19,0	115	115,8			

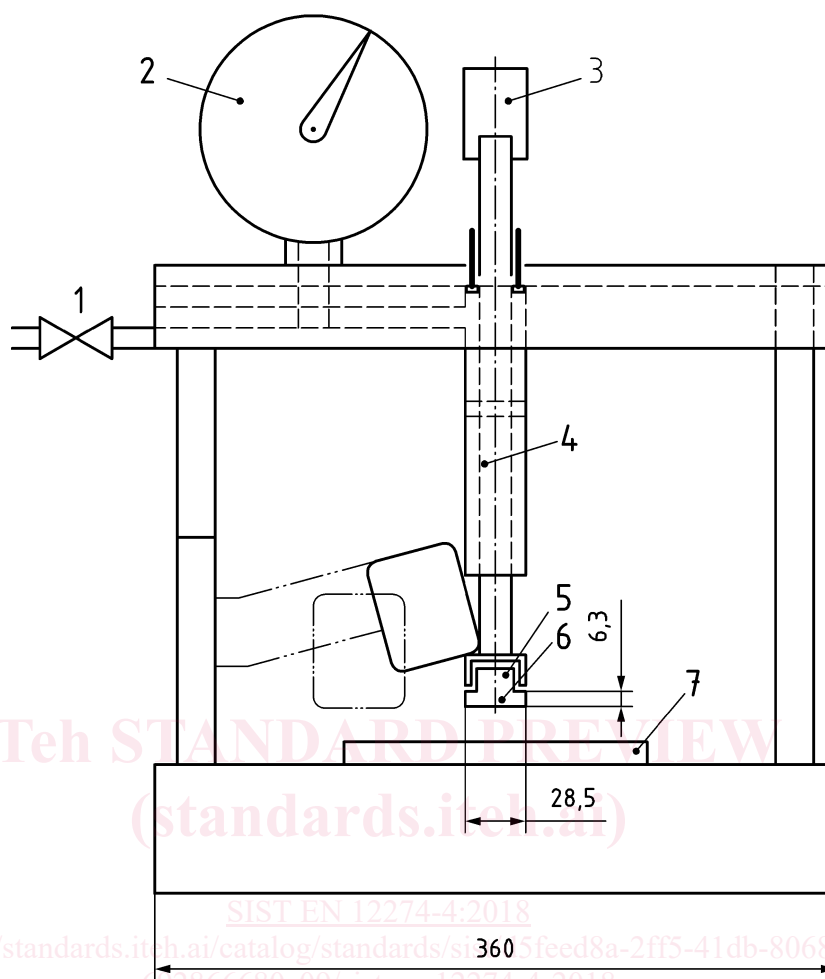


Key

- L* length
- W* width
- D* diameter
- H* height

Figure 1 — Square-shaped metal plate with moulds, upper view and side view

Dimensions in millimetres

**Key**

- 1 Control valve
- 2 Air pressure gauge
- 3 Drive socket for straight handle of torque meter
- 4 Double acting double end rod pneumatic cylinder
- 5 Rubber foot plug
- 6 Rubber foot
- 7 Sample

Figure 2 — Cohesion Tester**6.2 Apparatus used for testing****6.2.1 Cohesion tester**

- a) **Cohesion tester**, as shown in Figures 2 and 3 with a tolerance of 1 % for the dimensions (mm).
- b) **Double rod end air cylinder**, 28,5 mm in diameter, with 8 mm diameter rods and 76 mm stroke.

prEN 12274-4:2016 (E)

- c) **Rubber foot**, hardness (55 ± 5) IRHD, of dimensions 6,3 mm height and 28,5 mm diameter, in accordance with ISO 48.

NOTE 55 IRHD is approximately equivalent to 60 degrees durometer.

- d) **Air pressure regulator**, with a variable downstream bleed valve so that constant pressure is maintained.
- e) **Four-way directional control valve**, with exhaust port regulating valves.
- f) **Air pressure gauge**, with a 0 kPa to 700 kPa pressure gauge.
- g) **Torque meter**, capable of measuring and recording at least 3,5 Nm torque, accuracy of $\pm 0,1$ Nm.

6.2.2 Air supply, of 700 kPa

Dimensions in millimetres

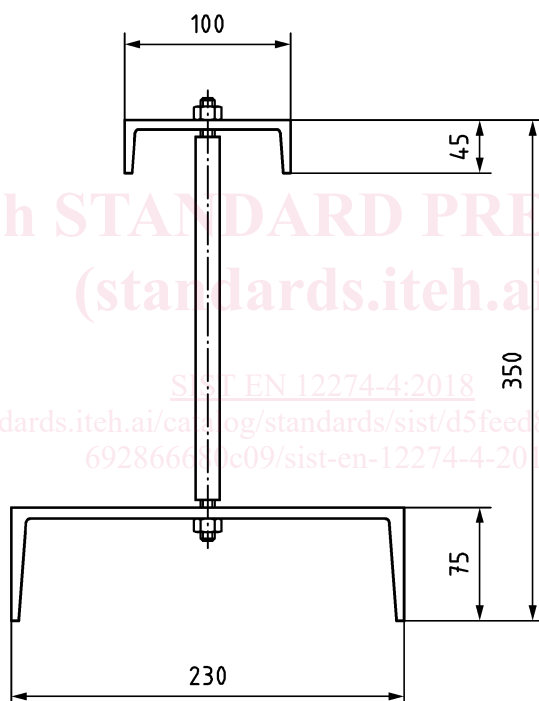


Figure 3 — Cohesion tester, side view