ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 12274-4:2018

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 Asphaltdeckschichten in Kaltbauweise - Prüfverfahren - Teil 4: Bestimmung der Kohäsion von Bitumenschlämmen

03/2018

National Foreword

This European Standard EN 12274-4:2018 was adopted as Luxembourgish Standard ILNAS-EN 12274-4:2018.

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 12274-4

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English Version

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This European Standard was approved by CEN on 13 November 2017.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 12274-4:2018) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by September 2018, and conflicting national standards shall be withdrawn at the latest by September 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes 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 of slurry surfacing mixture*

— 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*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 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.

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

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.

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 ± 100) g/m^2 for sample holder of the same dimensions as the square metal with moulds.