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Predhodni premazi za hladno in toplo nanosljive tesnilne mase za stike - 3. del: Določevanje trdnih delcev in hlapnosti

Primers for cold and hot applied joint sealants - Part 3: Determination of solids content and evaporation behaviour of volatiles

Voranstriche für kalt und heiß verarbeitbare Fugenmassen - Teil 3: Bestimmung des Feststoffanteils und des Verdunstungsverhaltens der flüchtigen Anteile

Primaires pour produits de scellement de joints appliqués à froid et à chaud - Partie 3: Détermination de la teneur en matières solides et du comportement à l'évaporation des substances volatiles

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Contents

Page

Foreword 3
1 Scope 4
2 Normative references 4
3 Terms and definitions 4
4 Principle 4
5 Apparatus 4
6 Procedure 5
6.1 Conditioning 5
6.2 Evaporation behaviour 5
6.3 Solids content 5
7 Calculation of results 5
7.1 Evaporation behaviour of volatiles 5
7.2 Solids content 6
8 Expression of results 6
9 Test report 6

Foreword

This document (EN 15466-3:2009) 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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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

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

— EN 15466-1, *Primers for cold and hot applied joint sealants – Part 1: Determination of homogeneity*

— EN 15466-2, *Primers for cold and hot applied joint sealants – Part 2: Determination of resistance against alkali*

— EN 15466-3, *Primers for cold and hot applied joint sealants – Part 3: Determination of solids content and evaporation behaviour of volatiles*

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1 Scope

This European Standard describes a method for determining the solids content and the evaporation behaviour of volatiles of primers for cold and hot applied joint sealants.

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.

EN 14188-4:2009, *Joint fillers and sealants – Part 4: Specifications for primers to be used with joint sealants*

EN ISO 291, *Plastics – Standard atmospheres for conditioning and testing (ISO 291:2008)*

ISO 188, *Rubber, vulcanized or thermoplastic – Accelerated ageing and heat resistance tests*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 14188-4:2009 and the following apply.

3.1
standard atmosphere
Standard atmosphere 23/50, class 2 in accordance with EN ISO 291

3.2
evaporation behaviour of volatiles
loss of mass at Standard atmosphere in a test enclosure or conditioning enclosure after a defined period of storing conditions

3.3
solids content
residue of a primer after a defined period of storage at 110 °C

4 Principle

A sample of a primer is stored under a defined conditioning. After this conditioning, the loss of volatile substances and the residue of the primer are calculated.

5 Apparatus

5.1 Balance, capacity ≥100 g, tolerance≤ 1 mg.

5.2 3 single use syringes, capacity approximately 2 ml.

5.3 3 glass Petri dishes, inner diameter (90 ± 5) mm, border height (10 ± 2) mm.

5.4 Desiccator, with drying agent.

5.5 Laboratory oven, complying with ISO 188 and capable of maintaining test specimens at constant temperatures of more than +120 °C.

6 Procedure

6.1 Conditioning

The primer shall be homogenized by shaking the container or by stirring with a suitable rod. The primer shall be conditioned in a test enclosure or conditioning room at Standard atmosphere for at least 24 hours.

3 glass Petri dishes and 3 single use syringes shall be conditioned at Standard atmosphere for at least 24 hours.

6.2 Evaporation behaviour

6.2.1 After conditioning, each empty Petri dish shall be weighed (m_1).

6.2.2 After conditioning, each of the single use syringes shall be filled with primer and weighed (m_2).

6.2.3 The content of a single use syringe shall be deposited in a glass Petri dish such that the primer is evenly distributed in the glass Petri dish.

6.2.4 Each of the emptied single use syringes and any remaining primer residue in the syringe shall be weighed (m_3).

6.2.5 The glass Petri dishes shall be stored at Standard atmosphere in a test enclosure or conditioning enclosure, which shall be a draught free environment. Each glass Petri dish and contents shall then be weighed after (60 ± 1) min (m_4) and after (90 ± 1) min (m_5).

6.3 Solids content

6.3.1 After carrying out 6.2.5, the glass Petri dishes shall be placed in a oven for 24 h ± 15 min at (110 ± 5) °C.

6.3.2 After removing the glass Petri dishes from the oven, the glass Petri dishes shall be conditioned in a desiccator for 1 h ± 10 min at (23 ± 2) °C.

6.3.3 After conditioning in the desiccator, weigh each glass Petri dish and contents (m_6).

7 Calculation of results

7.1 Evaporation behaviour of volatiles

The evaporation behaviour of volatiles for each sample after 60 min shall be calculated using Equation (1) and after 90 min using Equation (2):

Evaporation behaviour of volatiles after 60 min:

$$VA_{60} = 100 \times \left(1 - \frac{m_4 - m_6}{m_1 + m_2 - m_3 - m_6}\right) \quad (1)$$

Evaporation behaviour of volatiles after 90 min:

$$VA_{90} = 100 \times \left(1 - \frac{m_5 - m_6}{m_1 + m_2 - m_3 - m_6}\right) \quad (2)$$

where

VA_{60} is the evaporation behaviour of volatiles after 60 min in % by mass;

VA_{90} is the evaporation behaviour of volatiles after 90 min in % by mass;

m_1 is the mass of glass Petri dish;

m_2 is the mass of single use syringe with primer;

m_3 is the mass of single use syringe with primer residue;

m_4 is the mass of glass Petri dish with primer after 60 minutes stored at Standard atmosphere;

m_5 is the mass of glass Petri dish with primer after 90 minutes stored at Standard atmosphere;

m_6 is the mass of glass Petri dish with primer after being removed from the oven.

7.2 Solids content

The solid contents for each sample shall be calculated using Equation (3):

$$FA = 100 \times \frac{m_6 - m_1}{m_2 - m_3} \quad (3)$$

where

FA is the solids content, in % by mass;

m_1 is the mass of glass Petri dish;

m_2 is the mass of single use syringe with primer;

m_3 is the mass of single use syringe with primer residue;

m_6 is the mass of glass Petri dish with primer after being removed from the oven.

8 Expression of results

The results for the evaporation behaviour of volatiles after 60 min, the evaporation behaviour of volatiles after 90 min, and the solids content shall be expressed as an arithmetic average of the three individual results in terms of % by mass, rounded to the nearest 0,1%.

9 Test report

The test report shall confirm that the test was carried out in accordance with this European Standard and shall include the following information:

a) product name and type;

b) source of sample, batch number, date of manufacture and use by date;