SLOVENSKI STANDARD
SIST EN 12697-14:2002

01-september-2002

Bituminous mixtures - Test methods for hot mix asphalt - Part 14: Water content

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Asphalt - Prüfverfahren für Heißasphalt - Teil 14: Wassergehalt

Mélanges bitumineux - Essais pour enrobés a chaud - Teneur en eau

Ta slovenski standard je istoveten z: **EN 12697-14:2000**

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

SIST EN 12697-14:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12697-14

October 2000

ICS 93.080.20

English version

Bituminous mixtures - Test methods for hot mix asphalt - Part 14: Water content

This European Standard was approved by CEN on 4 October 2000.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 12697-14:2000 E

Contents

Foreword

This European Standard 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of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by April 2001.

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

EN 12697-1, *Bituminous mixtures - Test methods for hot mix asphalt - Part 1: Soluble binder content*

prEN 12697-2, *Bituminous mixtures - Test methods for hot mix asphalt - Part 2: Particle size distribution*

EN 12697-3, *Bituminous mixtures -Test methods for hot mix asphalt - Part 3: Binder recovery: Rotary evaporator*

EN 12697-4, *Bituminous mixtures - Test methods for hot mix asphalt - Part 4: Binder recovery: Fractionating column*

prEN 12697-5, *Bituminous mixtures - Test methods for hot mix asphalt - Part 5: Determination of the maximum density*

prEN 12697-6, *Bituminous mixtures - Test methods for hot mix asphalt - Part 6: Determination of bulk density of bituminous specimen by hydro-static method*

prEN 12697-7, *Bituminous mixtures - Test methods for hot mix asphalt - Part 7: Determination of bulk density of bituminous specimens by gamma rays*

prEN 12697-8, *Bituminous mixtures - Test methods for hot mix asphalt - Part 8: Determination of the air voids content of bituminous materials*

prEN 12697-9, *Bituminous mixtures - Test methods for hot mix asphalt - Part 9: Determination of the reference density, gyrator compactor*

prEN 12697-10, *Bituminous mixtures - Test methods for hot mix asphalt - Part 10: Compactibility*

prEN 12697-11, *Bituminous mixtures - Test methods for hot mix asphalt - Part 11: Determination of the affinity between aggregates and binders*

prEN 12697-12, *Bituminous mixtures - Test methods for hot mix asphalt - Part 12: Determination of the water sensitivity of specimen*

EN 12697-13, *Bituminous mixtures - Test methods for hot mix asphalt - Part 13: Temperature measurement*

EN 12697-14, *Bituminous mixtures - Test methods for hot mix asphalt - Part 14: Water content*

prEN 12697-15, *Bituminous mixtures - Test methods for hot mix asphalt - Part 15: Determination of the segregation sensitivity of bituminous mixtures*

prEN 12697-16, *Bituminous mixtures - Test methods for hot mix asphalt – Part 16: Abrasion by studded tyres*

prEN 12697-17, *Bituminous mixtures - Test methods for hot mix asphalt – Part 17: Particle loss of specimen*

prEN 12697-18, *Bituminous mixtures - Test methods for hot mix asphalt - Part 18: Binder drainage from porous asphalt*

prEN 12697-19, *Bituminous mixtures - Test methods for hot mix asphalt – Part 19: Permeability of specimen*

prEN 12697-20, *Bituminous mixtures - Test methods for hot mix asphalt - Part 20: Indentation using cube or marshall specimen*

prEN 12697-21, *Bituminous mixtures - Test methods for hot mix asphalt - Part 21: Indentation using plate specimen*

prEN 12697-22, *Bituminous mixtures - Test methods for hot mix asphalt - Part 22: Wheel tracking test*

prEN 12697-23, *Bituminous mixtures - Test methods for hot mix asphalt - Part 23: Indirect tensile test*

prEN 12697-24, *Bituminous mixtures - Test methods for hot mix asphalt - Part 24: Resistance to fatique*

prEN 12697-25, *Bituminous mixtures - Test methods for hot mix asphalt – Part 25: Dynamic creep test*

prEN 12697-26, *Bituminous mixtures - Test methods for hot mix asphalt - Part 26: Stiffness*

EN 12697-27, *Bituminous mixtures - Test methods for hot mix asphalt - Part 27: Sampling*

EN 12697-28, *Bituminous mixtures - Test methods for hot mix asphalt – Part 28: Preparation of samples for determining binder content, water content and grading*

prEN 12697-29, *Bituminous mixtures - Test methods for hot mix asphalt - Part 29: Determination of the dimensions of bituminous specimen*

prEN 12697-30, *Bituminous mixtures - Test methods for hot mix asphalt - Part 30: Preparation of specimen by impact compactor*

prEN 12697-31, *Bituminous mixtures - Test methods for hot mix asphalt - Part 31: Specimen preparation, gyratory compactor*

prEN 12697-32, *Bituminous mixtures - Test methods for hot mix asphalt - Part 32: Laboratory compaction of bituminous mixtures by a vibratory compactor*

prEN 12697-33, *Bituminous mixtures - Test methods for hot mix asphalt – Part 33: Specimen preparation, slab compactor*

prEN 12697-34, *Bituminous mixtures - Test methods for hot mix asphalt - Part 34: Marshall test*

prEN 12697-35, *Bituminous mixtures - Test methods for hot mix asphalt – Part 35: Laboratory mixing*

prEN 12697-36, *Bituminous mixtures - Test methods for hot mix asphalt - Part 36: Method for the determination of the thickness of a bituminous pavement*

prEN 12697-37, *Bituminous mixtures - Test methods for hot mix asphalt - Part 37: Hot sand test for the adhesivity of binder on precoated chippings for HRA*

prEN 12697-38, *Common equipment and calibration*

The applicability of this European Standard is described in the product standards for bituminous mixtures.

No existing European Standard is superseded.

WARNING The method described in this European Standard may require the use of dichloromethane (methylene chloride). This solvent is hazardous to health and is subject to occupational exposure limits as described in relevant legislation and regulations.

Exposure levels are related to both handling procedures and ventilation provision and it is emphasised that adequate training should be given to staff employed in the use of this substances.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard describes a test method for the determination of the water content of samples of bituminous mixtures. The test method is suitable for checking conformity to a product specification, where required.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

prEN 12697-27:2000, *Bituminous mixtures - Test methods for hot mix asphalt – Part 27: Sampling.*

3 Reagents

Solvents used in this European Standard shall be capable of dissolving bitumen and distilling the solution to recover the water present. The solvents shall not decompose in water and shall have a boiling point of not more than 85 ^{0}C to prevent the water from boiling.

NOTE 1 Currently all hydrocarbon solvents are regarded as “hazardous” and “environmentally unfriendly” to varying degrees.

NOTE 2 Until such time as there is an agreed CEN policy with regard to their usage, each member state should specify its preferred solvent taking into account the Montreal Protocol and views of its own Regulatory Bodies (see also “Warning” in the foreword).

NOTE 3 When trichloroethylene is recovered by distillation for further use, care should be taken to ensure that the solvent still conforms to the appropriate requirements. In particular, acidity may develop and a useful precaution is to store the solvent over calcium oxide in coloured glass or suitable metal containers.

NOTE 4 The solvent should be checked regularly to ensure that it is "dry".

The method consists of preheating a probe attached to a temperature measuring device before measuring the temperature at stated depths in a number of locations while the asphalt is in one of several different places and then calculating the average.

4 Apparatus

NOTE 1 Apparatus should be calibrated and traceable as recommended in prEN 12697-38:2000.

NOTE 2 A suitable assembly is shown in Figure 1.

4.1
Hot extractor consisting of a cylindrical container made from non-corrodible or brass gauze of about 1 mm to 2 mm aperture size or, alternatively, a spun copper tube with a ledge at the bottom of which a removable brass gauze disc rests. The container is retained, by any suitable means, in position in the top two-thirds of a metal pot. The pot is flanged and fitted with a secure cover and suitable jointing gasket. The cover is held in the position so that the joint between the container and the cover is solvent tight.

NOTE 1 The essential features of the construction are indicated in Figures 2 and 3.

NOTE 2 It is advantageous to have containers and pots of more than one size, the size employed being appropriate to quantity of material taken for analysis.

4.2
12,5 ml graduated receiver.

NOTE The receiver may be fitted with ground glass joints; in this case an adapter may be necessary to connect the receiver to the cover of the pot.

4.3
Water-cooled reflux condenser with a cooled length of at least 200 mm and the lower end ground at an angle of 45^0, to the axis of the condenser.

4.4
Balance, capable of weighing a test portion to an accuracy of 0,05 % of its mass.

4.5
Heater, such as an electric hotplate.

NOTE Gas rings should not be used because of the risk of toxic fumes arising from decomposition of any free solvent vapour and the corrosion of the pot if made of steel.

4.6
Closed container.

4.7
Oven, well ventilated.

5 Preparation of laboratory samples of bituminous mixtures

If required, prepare laboratory samples in accordance with prEN 12697-27:2000 to obtain suitable test portions.

6 Procedure

6.1
Take that part of the laboratory sample that was put aside during the sample reduction for the determination of water content and divide it into two portions by quartering and retain one portion in a closed container.

6.2
Weigh the other portion to the nearest 0,05 % and place it in a well-ventilated oven at (110 ± 10) °C for 1 h. Re-weigh this portion and if the loss in mass is less than 0,1 % no further action is required except to record the result as < 0,1 %.

6.3

If the loss in mass exceeds 0,1 % weigh the portion that was retained and transfer it to a dry hot extractor pot. Alternatively place the portion in the cylindrical container before transferring it to the extractor pot.

NOTE A filter paper may be used to line the gauze container if desired.

6.4
Add sufficient solvent (see clause 3) to permit refluxing to take place and then bolt on the cover with the dry gasket in position. Fit the receiver (see 4.2) and condenser (see 4.3) in place. Ensure an adequate flow of cold water through the condenser and heat the pot to give a steady reflux action.

6.5
Continue heating until the volume of water in the receiver remains constant for at least 5 min.

6.6
Measure the volume of water and record its mass

NOTE For this method assume that 1 ml of water weighs 1 g.

7 Expression of results

Calculate the water content, in percent by mass, of either

a) the original sample to the nearest 0,1 % or

b) the dried portions of the nearest 0,1 %.

Record the water content to the nearest 0,1 % by mass.