SLOVENSKI STANDARD
SIST EN 12697-54:2019

01-december-2019

Bitumenske zmesi - Preskusne metode - 54. del: Priprava vzorcev za preskus zmesi z bitumensko emulzijo

Bituminous mixtures - Test methods - Part 54: Curing of specimen for test of mixtures with bitumen emulsion

Asphalt - Prüfverfahren - Teil 54: Reifung von Probekörpern aus emulsionsgebundenem Mischgut

Mélanges bitumineux - Méthodes d'essai - Partie 54: Mûrissement d'éprouvettes d'essai pour enrobés à l'émulsion de bitume

Ta slovenski standard je istoveten z: **EN 12697-54:2019**

ICS:

93.080.20	Materiali za gradnjo cest	Road construction materials

SIST EN 12697-54:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12697-54

September 2019

ICS 93.080.20

English Version

Bituminous mixtures - Test methods - Part 54: Curing of specimen for test of mixtures with bitumen emulsion

Mélanges bitumineux - Méthodes d'essai - Partie 54: Mûrissement d'éprouvettes d'essai pour enrobés à l'émulsion de bitume

Asphalt - Prüfverfahren - Teil 54: Reifung von Probekörpern aus emulsionsgebundenem Mischgut

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

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European foreword

This document (EN 12697-54:2019) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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1 Scope

This document describes a series of accelerated protocols for curing of bituminous mixtures with bitumen emulsion in order to assess their properties.

The protocols are to be selected according to the type of mixture, the type of specimen, the test to be carried out and the conditions of the place of use.

This document applies to mixtures, specimens and cores, prepared in the laboratory and/or taken from the worksite.

The laboratory curing procedure is designed for bituminous mixtures containing bitumen emulsions, but it could also be used for other types of asphalt mixture that require curing in order to reach their potential strength.

2 Normative references

There are no normative references in this document.

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 http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
curing level
status and properties of the specimen, after subjecting to the chosen curing protocol

3.2
conventional curing level
status of the specimen, after subjecting to the chosen curing protocol, when its properties are assumed to be equivalent to the properties in the field

Note 1 to entry: To determine the conventional curing level and appropriate curing protocols, studies can be developed aimed to compare the properties after the protocols and the properties obtained in the field.

Note 2 to entry: Furthermore, in the manufacture and compaction of the mix, it is possible that some curing occurs. It is convenient to evaluate this effect.

3.3
non-compacted mixtures
bituminous mixture that has not been subjected to compaction process

3.4
unconfined specimen
compacted specimen to be subjected to curing after being extracted from the mould

3.5
confined specimen
compacted specimen to be subjected to curing before being extracted from the mould

4 Principle

Several conditioning protocols with as a combination of the temperature (Table 2), relative humidity (Table 3) and duration parameters (Table 4) are described with the aim to obtain properties of an asphalt mixture, equivalent to the properties in the field after a certain period of time.

5 Apparatus

5.1 Climatic chamber or ventilated oven

NOTE Emissions of volatile compounds can occur during the curing process.

5.1.1 Climatic chamber, thermostatically controlled, suitable for heating the specimens up to the relevant temperature with the tolerance of ±2 °C and humidity controlled with the tolerance of ±10 %.

5.1.2 Ventilated oven, thermostatically controlled, suitable for heating the specimens up to the relevant temperature with the tolerance of ±2 °C.

5.2 Perforated boxes

Dimensions (200 ± 5) mm long, (300 ± 5) mm wide and (50 ± 2) mm high, made of perforated

(3 ± 0,2) mm metal sheet on the sides and bottom. Equipped with paws (10 ± 1) mm in diameter and (50 ± 2) mm high at each corner of the base, see Figure 1.

Boxes only concern the uncompacted mixture.

Dimensions in millimetres

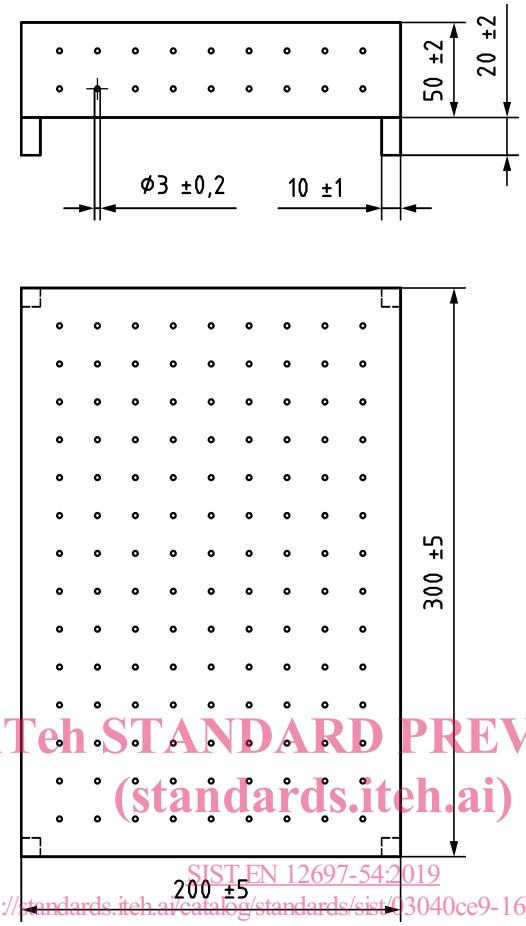

Figure 1 — Box of perforated metal

6 Curing nomenclature

6.1 General

All protocols shall be stated in the sequence of Table 1.

Table 1 — Nomenclature for curing protocols

Temperature °C	**Relative humidity** %	**Duration, days** d
Txx	Hxx	Dxx

For example: T20H50D1 for a curing protocol with a temperature of 20 °C, a relative humidity of 40 % to 60 % and a duration of 1 d.

6.2 Protocols

Selectable curing parameters are given in the Tables 2, 3 and 4.

Table 2 — Temperature

Temperature °C	
T18	18 ± 2
T20	20 ± 2
T35	35 ± 2
T40	40 ± 2
T50	50 ± 2
T60	60 ± 2
T75	75 ± 2
T90	90 ± 2
Td	Declared temperature ±2

Table 3 — Relative humidity

Relative humidity %	
H20	20 ± 10
H50	50 ± 10
H90	90 ± 10
Hd	Declared humidity ±10
Hnc	Not controlled

Table 4 — Duration

Duration, days d	
D1	1
D2	2
D3	3
D5	5
D7	7
D10	10
D14	14
D21	21
Dd	Declared duration of days