DIN EN 12697-1:2012-09 (E)

Bituminous mixtures - Test methods for hot mix asphalt - Part 1: Soluble binder content

Contents

Page

Foreword 4

Introduction 8

1 Scope 9

2 Normative references 9

3 Terms and definitions 9

4 Preparatory treatment of laboratory samples of bituminous mixtures 10

5 Determination of binder content 10
5.1 General principles of test 10
5.2 Binder extraction 11
5.2.1 Solvent 11
5.2.2 Apparatus 11
5.2.3 Procedure 11
5.3 Separation of mineral matter 12
5.3.1 Apparatus 12
5.3.2 Procedure 12
5.4 Binder quantity 12
5.4.1 Apparatus 12
5.4.2 Procedure 12
5.5 Calculation and expression of results 12
5.5.1 General 12
5.5.2 Binder determined by difference 13
5.5.3 Binder by total recovery 13
5.5.4 Binder by recovery from portion (volume calculation) 13
5.5.5 Binder by recovery from portion (mass calculation) 14

6 Drying to constant mass 14
6.1 General 14
6.2 Apparatus 14
6.3 Procedure 15

7 Reporting of results 15
7.1 Results 15
7.2 Test report 15

8 Precision data 15
8.1 Precision -- Experiment 1 16
8.2 Precision -- Experiment 2 16
8.3 Precision -- Experiment 3 17
8.4 Precision -- Experiment 4 17

Annex A (informative) Guidance on the determination of binder content 18

A.1 Evaluation of the results 18
A.2 Effect of water content 18
A.3 Choice of test equipment and the sequence of operations 19

A.4 Determination of total binder content 19

Annex B (normative) Use of equipment for the determination of binder content 20

B.1 Binder extraction 20
B.1.1 Hot extractor (paper filter) method 20
B.1.2 Hot extractor (wire mesh filter) method 23
B.1.3 Soxhlet extractor method 24
B.1.4 Bottle rotation machine method 27
B.1.5 Centrifuge extractor method 29
B.1.6 Cold mix dissolution of bitumen by agitation 32
B.2 Separation of mineral matter 32
B.2.1 Continuous flow centrifuge 32
B.2.2 Pressure filter 34
B.2.3 Bucket type centrifuge -- Type 1 35
B.2.4 Bucket type centrifuge -- Type 2 36
B.3 Soluble binder content 37
B.3.1 Method by recovery from a portion using a volume calculation 37
B.3.2 Method by recovery from a portion using a mass calculation 39

Annex C (normative) Determination of residual mineral matter in the binder extract by incineration 40

C.1 General 40
C.2 Method 1 40
C.2.1 Apparatus 40
C.2.2 Reagent 40
C.2.3 Procedure 40
C.3 Method 2 41
C.3.1 Apparatus 41
C.3.2 Procedure 41

Annex D (informative) Guidance on determination of soluble binder content of mixtures with polymer-modified binders 43

D.1 General 43
D.2 Preparatory treatment of laboratory samples of bituminous mixtures 43
D.3 Determination of binder content 43
D.3.1 General principles of test 43
D.3.2 Binder extraction 43
D.3.3 Separation of mineral matter 45
D.3.4 Binder quantity 46
D.3.5 Calculation and expression of results 46
D.4 Drying to constant mass 46
D.5 Reporting of results 46
D.6 Precision data 46

Bibliography 47