DIN EN 13055:2016-11 (E)

Lightweight aggregates

Contents

Page

European foreword 5

1 Scope 7

2 Normative references 7

3 Terms and definitions 9

4 Symbols and abbreviations 10

5 Product characteristics 10
5.1 General 10
5.2 Density 10
5.2.1 Loose bulk density 10
5.2.2 Particle density 10
5.3 Aggregate size 11
5.3.1 General 11
5.3.2 Undersize 11
5.3.3 Oversize 11
5.4 Grading 12
5.5 Content of fines in LWA 12
5.6 Grading of LWA filler 12
5.7 Particle shape 12
5.8 Water content 12
5.9 Water absorption 12
5.10 Bulk crushing resistance 12
5.11 Crushed particles 12
5.12 Resistance to disintegration 12
5.13 Freezing and thawing resistance 13
5.14 Water suction height 13
5.15 Compressibility and confined compressive strength 13
5.16 Resistance to cyclic compressive loading 13
5.17 Stiffening properties 13
5.18 Voids of dry compacted LWA filler 13
5.19 Resistance to thermal shock 13
5.20 Resistance to polishing 13
5.21 Resistance to wear by abrasion from studded tyres of coarse LWA in surface treatments 14
5.22 Affinity between LWA and bitumen 14
5.23 Resistance to fragmentation 14
5.24 Resistance to wear 14
5.25 Chemical characteristics 14
5.25.1 General 14
5.25.2 Water solubility 14
5.25.3 Chloride 15
5.25.4 Sulphur containing compounds 15
5.25.5 Loss on ignition 15
5.25.6 Water-soluble constituents 15
5.25.7 Organic contaminators 15
5.25.8 Alkali-silica reactivity of natural LWA 15
5.26 Dangerous substances 15
5.27 Thermal conductivity 16
5.27.1 General 16

5.27.2 Correction for moisture 16

6 Testing 16
6.1 Sampling and sample reduction 16
6.2 Quantity of test specimens 16
6.3 Preparation of test specimens for thermal conductivity testing 16
6.3.1 Drying 16
6.3.2 Conditioning after drying 16
6.3.3 Preparation of test specimens 16
6.3.4 Thickness of test specimens 16

7 Assessment and verification of constancy of performance - AVCP 17
7.1 General 17
7.2 Type testing 17
7.2.1 General 17
7.2.2 Test samples and testing 17
7.2.3 Shared results 18
7.2.4 Test reports 18
7.3 Factory production control (FPC) 18
7.3.1 General 18
7.3.2 Requirements 18
7.3.3 The FPC system and compliance with the DoP 20
7.3.4 Initial inspection of factory and FPC covered under AVCP system 2+ 21
7.3.5 Continuous surveillance of FPC covered under AVCP system 2+ 21
7.3.6 Procedure for modifications 21
7.3.7 Prototypes and custom-made products 22

8 Designation, supply, marking and labelling 22
8.1 Designation 22
8.2 Supply 23
8.3 Marking and labelling 23

their status in respect of the scope of the standard 24

Annex B (normative) Standards covering other applications of LWA 27

Annex C (normative) Determination of bulk crushing resistance 28

C.1 Principle 28
C.2 Apparatus 28
C.3 Preparation of test specimens 28
C.4 Procedure 29
C.4.1 Procedure 1 29
C.4.2 Procedure 2 29
C.5 Calculation and expression of results 29
C.6 Test report 29

Annex D (informative) Determination of water absorption for fine LWA 33

D.1 General 33
D.2 Principle 33
D.3 Apparatus 33
D.3.1 General 33
D.3.2 Apparatus for general purposes 33
D.3.3 Special apparatus for surface drying 33
D.4 Preparation of test specimens 34
D.5 Test procedure 34
D.6 Calculation and expression of results 34
D.7 Test report 35

Annex E (informative) Guidance on how to convert quantities by mass to quantities by volume 36

E.1 Background 36
E.2 Example calculation 36

Annex F (informative) Guidance on the effects of some chemical constituents of LWA on the durability of concrete, mortar and grout in which they are incorporated 37

F.1 General 37
F.2 Chlorides 37
F.3 Organic components 37
F.4 Alkali aggregate reaction 37
F.5 Sulphates 38

Annex G (informative) Indicative test frequencies for factory production control (FPC) 39

Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No 305/2011 ..42

ZA.1 Scope and relevant characteristics 42

ZA.2 System of Assessment and Verification of Constancy of Performance (AVCP) 47

ZA.3 Assignment of AVCP tasks 48

Bibliography 50