**SCOPE 142 ЛИ**

**Sofia, 16.10.2024**

**INDEPENDENT CONSTRUCTION LABORATORY INFRASTRUCTURE LTD.**

**INDEPENDENT CONSTRUCTION LABORATORY**

**Management and laboratory address:** 1619 Sofia, 257 Tsar Boris III Blvd.

**To perform testing of:**

| **Type of the scope:** *flexible* | | | |
| --- | --- | --- | --- |
| **№** | **Tested Products** | **Type of test/ Characteristic** | **Testing methods**  **(standard/ validated method)** |
| 1 | 2 | 3 | 4 |
| 1. | Construction soils (unbound and hydraulically bound mixtures; aggregates for unbound and hydraulically bound mixtures to be used in civil engineering work and road construction) | 1.1 Determination of water content | ASTM D 1556/D 1556 М\*  БДС EN 1097-5  БДС EN ISO 17892-1 |
| 1.2 Determination of particle size distribution | БДС EN 933-1  AASHTO Т 88  AASTHTO Т 27  БДС EN ISO 17892-4,  cl. 5.2 and cl. 5.3 |
| 1.3 Determination of particle density | БДС EN ISO 17892-3, cl. 5.1 |
| 1.4 Determination of bulk density | БДС EN ISO 17892-2,  cl. 5.1 and 5.2  Appendix 18 of Ordinance № РД-02-20-2 |
| 1.5 Determination of dry density  Bulk density of the skeleton | БДС EN ISO 17892-2,  cl. 5.1 and cl. 5.2  ASTM D 1556/D 1556 М\*  Appendix 18 of Ordinance № РД-02-20-2 |
| 1.6 Determination of wet density | ASTM D 1556/D 1556 М\* |
| 1.7 Elastic module | БДС 15130 |
| 1.8 Deformation module | БДС 15130 |
| 1.9 Relation of deformation modules | БДС 15130 |
| 1.10 Determination of liquid limit | AASHTO Т 89  БДС EN ISO 17892-12,  cl. 5.3  Appendix 15 of Ordinance № РД-02-20-2 |
| 1.11 Determination of plastic limit  Determination of liquid limit | AASHTO Т 90  БДС EN ISO 17892-12  Appendix 16 of Ordinance № РД-02-20-2 |
| 1.12 Plasticity Index | AASHTO Т 90  Appendix 16 of Ordinance № РД-02-20-2  БДС EN ISO 17892-12 |
| 1.13 Consistency index | БДС EN ISO 17892-12 |
| 1.14 Determination of optimal water content | БДС 17146, cl. 3.3 – type of test H 100, M 100, H 150,  M 150  БДС EN 13286-2,  cl. 7.1; 7.2; 7.4; 7.5; Appendix A |
| 1.15 Determination of normal density of the skeleton | БДС 17146, cl. 3.3 - type of test H 100, H 150 |
| 1.16 Determination of modified density of the skeleton | БДС 17146, cl. 3.3 - type of test M 100, M 150 |
| 1.17 Determination of degree of compaction | БДС 17146  Appendix 18 of Ordinance № РД-02-20-2 |
| 1.18 Determination of the standard density of the skeleton - Proctor compaction | БДС EN 13286-2,  cl. 7.1; 7.2; Appendix A |
| 1.19 Determination of the standard density of the skeleton – modified Proctor compaction | БДС EN 13286-2,  cl. 7.4; 7.5; Appendix A |
| 1.20 Determination of California bearing ratio (CBR) | БДС EN 13286-47 |
| 1.21 Compression characteristics  1.21.1 Vertical deformation  1.21.2 Compression module  1.21.3 Coefficient of consolidation  1.21.4 Pore coefficient  1.21.5 Swelling pressure | БДС EN ISO 17892-5 |
| 1.22 Friction angle   * Peak friction angle * Residual friction angle | БДС 10188/Amendment 1  БДС EN ISO 17892-10,  cl. 4.1 |
| 1.23 Cohesion   * Peak cohesion * Residual cohesion |
| 2. | Additives/aggregates (coarse, fine/ sand, fillers, unfractionated for various applications) | 2.1 Determination of particle size distribution | БДС EN 933-1 |
| 2.2 Determination of fine fraction content | БДС EN 933-1 |
| 2.3 Determination of California bearing ratio (CBR) | БДС EN 13286-47 |
| 2.4 Magnesium sulfate solution resistance | БДС EN 1367-2 |
| 2.5 Determination of loose bulk density | БДС EN 1097-3 |
| 2.6 Percentage of voids | БДС EN 1097-3  БДС EN 1097-6, cl. 7,  cl. 8, cl. 9, Appendix B |
| 2.7 Determination of particle density   * specific ρa * dry ρrd * water-saturated and surface dry (water-saturated to constant mass) ρssd,ρcm | БДС EN 1097-6, cl. 7,  cl. 8, cl. 9, Appendix B |
| 2.8 Determination of water absorption | БДС EN 1097-6, cl. 7,  cl. 8, cl. 9, Appendix B |
| 2.9 Shape index | БДС EN 933-4 |
| 2.10 Flakiness index | БДС EN 933-3 |
| 2.11 Determination of:   * crushed particles; * totally crushed particles; * totally rounded particles | БДС EN 933-5 |
| 2.12 Determination of the length of particles | БДС EN 13450 cl. 6.7 |
| 2.13 Determination of the water content | БДС EN 1097-5 |
| 2.14 Resistance to fragmentation under static load | БДС EN 206+A2/NA  (Appendix NA.Q) |
| 2.15 Determination of resistance to fragmentation - LA coefficient | БДС EN 1097-2 |
| 2.16 Percentage of shells | БДС EN 933-7 |
| 2.17 Sand equivalent | БДС EN 933-8+А1 |
| 2.18 Determination of the particle density of filler | БДС EN 1097-7 |
| 2.19 Determination of the voids of dry compacted filler | БДС EN 1097-4 |
| 2.20 Determination of liquid limit | AASHTO Т 89  Appendix 15 of Ordinance № РД-02-20-2 |
| 2.21 Determination of plastic limit  Determination of liquid limit | AASHTO Т 90  Appendix 16 of Ordinance № РД-02-20-2 |
| 2.22 Plasticity Index | AASHTO Т 90  Appendix 16 of Ordinance № РД-02-20-2 |
| 2.23 Determination of the standard density of the skeleton – modified Proctor compaction | БДС EN 13286-2,  cl. 7.4, cl. 7.5; Appendix A |
| 2.24 Determination of optimal water content | БДС EN 13286-2,  cl. 7.4, cl. 7.5; Appendix A |
| 3. | Natural stone and rock aggregates | 3.1 Determination of particle bulk density | БДС EN 13383-2, cl. 8 |
| 3.2 Determination of water absorption | БДС EN 13383-2, cl. 8 |
| 3.3 Determination of dry compressive strength | БДС EN 1926 |
| 3.4 Determination of water-soaked compressive strength (for 48±4 h) | БДС EN 1926, Appendix A |
| 4. | Bituminous mixtures | 4.1 Determination of bulk density of bituminous specimens | БДС EN 12697-6, Procedures A and B |
| 4.2 Determination of the maximum density | БДС EN 12697-5, Procedure A |
| 4.3 Residual voids V*m* | БДС EN 12697-8, cl. 4 |
| 4.4 Soluble binder content | БДС EN 12697-1,  Annex В, cl. В.2.1 |
| 4.5 Determination of particle size distribution | БДС EN 12697-2+А1 |
| 4.6 Determination of stability by Marshall test | БДС EN 12697-34 |
| 4.7 Determination of the flow by Marshall test | БДС EN 12697-34 |
| 5. | Petroleum viscous bitumen, polymer modified | 5.1 Penetration at 25°C | БДС EN 1426 |
| 5.2 Elastic recovery at 25°C | БДС EN 13398 |
| 5.3 Softening point of viscous bitumen | БДС EN 1427 |
| 6. | Concrete mixtures (1)  Concrete (2)  Solutions - injection (3) | 6.1 Slump test | БДС EN 12350-2(1) |
| 6.2 Shape and dimensions of specimens | БДС EN 12390-1(2) |
| 6.3 Compressive strength | БДС EN 12390-3(2)  БДС EN 445, cl. 4.6 (3) |
| 6.4 Flexural strength | БДС EN 12390-5(2) |
| 6.5 Tensile splitting strength | БДС EN 12390-6(2) |
| 6.6 Watertightness  6.6.1 Water penetration depth | БДС EN 206+A2/NA (2) (Appendix NA.N) |
| 6.7 Frost resistance   * relative mass loss * relative strength loss | БДС EN 206+A2/NA (2) (Appendix NA.O,  Part NA.O.1 main method) |
| 6.8 Density of hardened concrete | БДС EN 12390 -7(2) |
| 7. | Building structures (1),  laid and compacted bituminous layers (2),  waterproofing systems (3) | 7.1 Geometry of drill cores   * diameter – d * height * flatness * stability | БДС EN 12504-1(1)  БДС EN 12390-1(1) |
| 7.2 Compressive strength of concrete from cut test specimens (cores) of prefabricated structures | БДС EN 12390-3(1)  БДС EN 12504-1(1) |
| 7.3 Adhesion strength | ASTM D 7234(3) |
| 7.4 Determination of degree of compaction | БДС EN 12697-9\*(2) |
| 7.5 Determination of bulk density of bituminous specimens (core) | БДС EN 12697-6(2),  Procedures A and B |
| 7.6 Determination of the reference density | БДС EN 12697-9\*(2) |
| 7.7 Determination of the thickness of bituminous pavement | БДС EN 12697-36,  cl. 6.1 (2) |
| 7.8 Beckelman beam deflection method | БДС 15 131 (2) |

*\*Repealed but not replaced standard with regard to the testing method.*

**To perform sampling of:**

| **Type of the scope:** *flexible* | | |
| --- | --- | --- |
| **№** | **Product** | **Sampling method**  **(standardized/ validated)** |
| **1** | **2** | **3** |
| 1. | Construction soils (unbound and hydraulically bound mixtures; aggregates for unbound and hydraulically bound mixtures to be used in civil engineering work and road construction) | БДС EN 13286-1 |
| 2. | Additives/aggregates (coarse, fine/ sand, fillers, unfractionated for various applications) | БДС EN 932-1, cl. 8.8,  Appendix A.2 |
| 3. | Bituminous mixtures | БДС EN 12697-27,  cl. 4.1, cl. 4.3, cl. 4.7 |
| 4. | Concrete mixtures, concrete | БДС EN 12350-1 |
| 5. | Building structures (1), laid, and compacted bituminous layers (2) | БДС EN 12504-1, cl. 6 (1)  БДС EN 12697-27, cl. 4.7 (2) |

***Flexible scope:*** *Implementing a new version of standards/documents or standards/ documents replacing them is allowed. An updated list of standards/documents and their dated versions is provided by the laboratory.*

**Reference:**

Ordinance № РД-02-20-2 on road design of the Ministry of Regional Development and Public Works, prom. SG № 79/25.09.2018, Amd. SG № 90/30.10.2018, Amd. SG № 38 of 24.04.2020; Appendix 15 to Article 160, item 3; Appendix 16 to Article 160, item 3; Appendix 18 to Article 168, para. 1.