**SCOPE 3 ЛИ**

**Sofia, 26.04.2024**

of CERTMAT EOOD

Construction Testing Laboratory

Management address: 1619 Sofia, 281 Tsar Boris III Blvd.

Laboratory address: 2344 Studena, Pernik Region, Studena Pit

**To perform testing of**:

| **Type of the scope:** *flexible\** | | | |
| --- | --- | --- | --- |
| **№** | **Name of the tested products** | **Type of test / characteristic** | **Test methods (standard / validated method)** |
| **1** | **2** | **3** | **4** |
| 1. | Rocky/Additional materials | * 1. Grain size distribution | БДС EN 933-1 |
| * 1. Fine fraction content | БДС EN 933-1 |
| * 1. Index of flat grains | БДС EN 933-3 |
| 1.4. Grain density  - apparent grain density;  - dry grain density;  - grain density in the water -saturated surface state. | БДС EN 1097-6, cl. 7, cl. 8 and cl. 9, Appendix A, B, F |
| 1.5. Water absorption | БДС EN 1097-6, cl. 7, cl. 8 and cl. 9, Appendix B, F, H |
| 1.6. Density in bulk and gaps | БДС EN 1097-3 |
| 1.7. Coefficient of absorption of capillary water | БДС EN 1925,  Amendment 1 |
| 1.8. Percentage content  - whole cracked grains;  - crushed grains;  - completely rounded grains. | БДС EN 933-5 |
| 1.9. Grain-shape factor | БДС EN 933-4 |
| * 1. Magnesium sulfate test | БДС EN 1367-2 |
| * 1. Water content | БДС EN 1097-5 |
| * 1. Comparative density and water content.   Proctor's test | БДС EN 13286-2, cl. 7.1,  cl. 7.2, cl. 7.4, cl. 7.5  БДС 17146 |
| * 1. Resistance to fragmentation at static loading | БДС EN 206+2A2/NA  Appendix NA.Q |
| * 1. Resistance to freezing and thawing | БДС EN 1367-1 |
| * 1. Shell content | БДС EN 933-7 |
| * 1. Sand equivalent | БДС EN 933-8+A1 |
| * 1. Fine fraction evaluation. Methylene blue test | БДС EN 933-9 |
| * 1. California bearing ratio (CBR)   Immediate wearability  Linear swelling | БДС EN 13286-47 |
| * 1. Resistance to crushing (breakability) - Los Angeles method | БДС EN 1097-2 |
| * 1. Length of grains | БДС EN 13450/AC |
| * 1. Adhesion between additives and bitumen | БДС EN 12697-11  БДС 11685 |
| * 1. Elastic modulus under circular plate loading.   Deformation modules under circular plate loading.  Ratio of deformation modules E2/E1 when loaded with a circular plate. | БДС 15130,  Loading plate D=300 mm |
| 2. | Mineral flour | 2.1. Grain size distribution | БДС EN 933-1 |
| 2.2. Particle density of fine aggregate. Pyknometer method | БДС EN 1097-7 |
| 2.3. Water contents | БДС EN 1097-5 |
| 2.4. Fine fraction evaluation. Methylene blue test | БДС EN 933-9 |
| 3. | Construction soils | 3.1. Grain size distribution | БДС EN ISO 17892-4,  Sieve method,  БДС EN 933-1 |
| 3.2. Plasticity rate  -flow limit   * -drain limit | AASHTO T90-20,  Appendix № 16 to Art. 160,  item 3 of Ordinance № РД-02-20-2,  AASHTO T89-13,  Appendix № 15 to Art. 160,  item 3 of Ordinance № РД-02-20-2,  AASHTO T90-20  Appendix № 16 to Art. 160,  item 3 of Ordinance № РД-02-20-2, |
| 3.3. Comparative density and water content.  Proctor's test | БДС EN 13286-2, cl. 7.1,  cl. 7.2, cl. 7.4, cl. 7.5  БДС 17146 |
| 3.4. Water content | БДС EN ISO 17892-1 |
| 3.5. Determination of particle density | БДС EN ISO 17892-3,  Fluid picnometer method |
| 3.6. Volume density.  Density in dry condition | БДС EN ISO 17892-2,  Linear method |
| 3.7. Bulk density of the frame by the substitute sand method.  Stage of compactness | Appendix № 18 to Art. 168,  item 1 of Ordinance № РД-02-20-2, SG № 79/2018 |
| 3.8. Elastic modulus under circular plate loading.  Deformation modules under circular plate loading.  Ratio of deformation modules E2/E1 when loaded with a circular plate. | БДС 15130,  Loading plate D=300 mm |
| 3.9. California bearing ratio (CBR)  Immediate wearability  Linear swelling | БДС EN 13286-47, cl. 7.1, cl. 7.2, cl. 7.4, cl. 7.5 |
| 4. | Asphalt mixtures | 4.1. Bulk density of bituminous specimens | БДС EN 12697-6 |
| 4.2. Maximum density of asphalt mixtures | БДС EN 12697-5 |
| 4.3. Content of air pores (Vm) | БДС EN 12697-8 |
| 4.4. Pores content  - pores filled with adhesive  (VFB);  - pores in mineral aggregate (VMA). | БДС EN 12697-8 |
| 4.5. Soluble binder content | БДС EN 12697-1,  Extraction centrifuge method |
| 4.6. Distribution of the size of particles/granulometric composition | БДС EN 12697-2+A1 |
| 4.7. Water sensitivity of bituminous specimens:  - Index (ITSR) | БДС EN 12697-12 |
| 4.8. Indirect-tension strength (ITS) | БДС EN 12697-23 |
| 4.9. Resistance after Marshall | БДС EN 12697-34 |
| 4.10. Conditional plasticity after Marshall | БДС EN 12697-34 |
| 4.11. Dimensions of a bituminous specimen | БДС EN 12697-29 |
| 4.12. Asphalt mixture temperature | БДС EN 12697-13 |
| 4.13. Binder drainage | БДС EN 12697-18 |
| 5. | Asphalt pavements | 5.1. Asphalt pavement thickness | БДС EN 12697-36,  Destructiive method |
| 5.2. Conditional comparative density  Stage of compactness | БДС EN 12697-9\* |
| 5.3. Bulk density of bituminous specimens (core) | БДС EN 12697-6 |
| 5.4. Irregularities on the pavement surface  - transversal regularity;  - longitudinal regularity. | БДС EN 13036-7,  БДС 17143 |
| 6. | Bitumens | 6.1. Penetration | БДС EN 1426 |
| 6.2. Softening point/temperature, Ring-and-Ball Method | БДС EN 1427 |
| 6.3. Elastic recovery at 25°C | БДС EN 13398 |
| 6.4. Density | БДС EN 15326+A1 |
| 7. | Bituminous emulsions | 7.1. Visible properties | БДС EN 1425 |
| 7.2. Content of recovered adhesive substance and oil distillate | БДС EN 1431 |
| 7.3. Viscosity/escape time | БДС EN 12846-1 |
| 7.4. Sieving remainder and storage stability | БДС EN 1429 |
| 7.5. Decomposition rate. Mineral filler method | БДС EN 13075-1 |
| 7.6. Recovered adhesive substance  - penetration at 25°C;  - softening point/temperature, Ring-and-Ball Method. | БДС EN 1426  БДС EN 1427 |
| 7.7. Polarity of the particles | БДС EN 1430 |
| 7.8. Resistance to mixing with cement | БДС EN 12848 |
| 8. | Solidified concrete and concrete mixtures | 8.1. Subsidence of the concrete mixture | БДС EN 12350-2 |
| 8.2. Density of the solidified concrete | БДС EN 12390-7 |
| 8.3. Compressive strength | БДС EN 12390-3 |
| 9. | Floor coverings | 9.1 Compressive strength | БДС EN 13892-2 |
| 9.2 Flexural strength | БДС EN 13892-2 |
| 9.3 Adhesive strength | БДС EN 13892-8 |
| 10. | Water proofing products (liquid application systems/sets sheet, articles) for:  - Buildings;  - Facilities: bridges, viaducts with concrete base | 10.1 Capacity for bridging gaps | БДС EN 14224 |
| 10.2 Water absorption | БДС EN 14223 |
| 10.3 Adhesion under tensile load | БДС EN 13596 |
| 10.4 Shear strength | БДС EN 13653 |

**To perform sampling of:**

| **Type of the scope:***Flexible\** | | |
| --- | --- | --- |
| **№** | **Products** | **Sampling method (standardized / validated)** |
| **1** | **2** | **3** |
| 1. | Rocky/Additional materials | БДС EN 932-1 |
| 2. | Construction soils | БДС EN 932-1,  БДС EN 13286-1 |
| 3. | Asphalt mixtures | БДС EN 12697-27, cl. 4.1, cl. 4.4, cl. 4.5 |
| 4. | Asphalt pavements | БДС EN 12697-27, cl. 4.7 |
| 5. | Solidified concrete and concrete mixtures | БДС EN 12350-1 |

***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 laboratory.*

Fixed scope references:

1. Ordinance № РД-02-20-2 of 28.08.2018, on road design.

2. Ordinance № РД-02-20-2 of 28.08.2018, on road design.

3. Ordinance № РД-02-20-2 of 28.08.2018, on road design.