

SILICATE AND POLYMER CONSTRUCTION COMPOSITES

LABORATORY „PREPARING OF SAMPLES“, containing four sectors:

1. „Preparing samples from silicate and polymer materials“

Equipment: *standard mixer according to EN 196-1, flow tables - EN 196-1 and EN 1015-3, moulds for mechanical testing of cement (EN 196-1) and concrete (EN 12390-1), standard Abrams's cone (EN 12350-2), Vicat apparatus (EN 196-3), Le Chatelier apparatus (EN 196-3), Blaine apparatus (EN 196-6), device for determination of concrete water permeability (EN 206-1+NA:2008) etc.*

2. „Humidity cabinet“ (specially equipped room for storing and tempering of samples from silicate and polymer materials).

Equipment: *water tanks, rack system, heaters, evaporator, thermometers, humidity meter etc.*

3. Preparing samples from building materials and products”:

Equipment: *electrical cutters (for metals, ceramics, polymers, wood), buzz-saw, drilling machine, compressor, electric welding machine, oxyacetylene torch etc.*

4. „Storage of building materials“

Equipment: *racks, cells for aggregates storage, balance (accuracy 5g), technical balance (accuracy 0.01 g), ventilated oven, volumetric vessels and appliances – metallic cylinders, scoops, funnels and other, standard sieve series (EN 933-1), ball mills etc.*

LABORATORY „PHYSICAL PROPERTIES OF THE MATERIALS“ – for determination of basic physical, hydro-physical and thermal properties of the materials.

Equipment: *devices for measuring of dimensions (tape measures, micrometer, vernier caliper), technical balance (0,01 g) which can be adopted as hydrostatic one, volumetric vessels (graduated cylinders, flasks, burettes, pipettes, pycnometers, test tubes, funnels, etc.), desiccators with valves, vacuuming apparatus, hot plates, sand bath, ventilated ovens, high temperature furnace (up to 1200°C) etc.*

LABORATORY „MECHANICAL TESTING OF MATERIALS“

Equipment: Testing machines – hydraulic and mechanical testing machines (presses) for strength testing – in compression, tension and bending, for determination of Young modulus, deformation properties etc. *(five testing machines, different in range, for testing of static and dynamic properties), Brinell hardness apparatus (EN ISO 6506-1), Charpy apparatus for impact strength determination (EN ISO 179-1), Schmidt hammer (EN 13791+NA:2011), device for non-destructive testing of concrete by supersonic impulse (EN 13791) etc.*

LABORATORY „HIGH TEMPERATURE TESTING” for investigation of the performance of silicate, polymer and hybrid-matrix-based composites in different high temperature conditions.

Equipment: *high temperature furnace with controlled increasing of temperature up to 1200°C (ISO 834), an appliance for determination of fire protection effect on composites, an apparatus for determination of flammability of building materials.*