Record 48 hours of water storage test Clay-Sand from a pit in Germany with Alphasoil®-06

July 2017

Composition after sieve-sedimentation-analysis (grain size analysis) Clay-Sand of the delivered sample:

- 16.5% Clay (Grain Size <0.002mm)
- 8.4% Silt (Grain Size 0.002mm to 0.063mm)
- 75.1% Sand (Grain Size 0.063mm to 2mm)

**Specimen Press-Core Production:**

1 x press-core ≈ 8cm height x 3.5cm Ø untreated (ub.)

The cohesive material was homogeneously compulsory mixed with water only, resulting in a crumbly and hand-moist binding material. Subsequently, the material was produced with >10 tons of pressure in a press mold provided with drainage holes, to a press-core.

1 x press-core ≈ 8cm height x 3.5cm Ø treated with Alphasoil®-06 (Alpha)

The cohesive material was homogeneously compulsory mixed with Alphasoil®-06-Working-Solution (8ml Alphasoil®-06-Concentrate on 500ml water), resulting in a crumbly and hand-moist binding material. Subsequently, the material was produced with >10 tons of pressure in a press mold provided with drainage holes, to a press-core.
Water Storage Test:
The 2 press cores were air-dried in the sun for 2 days and then provided with 3 markings at a height of 1cm each, weighed and placed in a water bath of 1cm depth.

Test specimen weight treated with Alphasoil®-06 20th July 2017 9:23h = 178g

The determination of the weight of the untreated press-core (ub.) we omitted because of the foreseeable development of disintegration.

Start test specimen with Alphasoil®-06 and untreated 1cm deep in the water bath 20th July 2017 9:28h
Test specimen with Alphasoil®-06 after 1 hour 1cm deep in the water bath 20th July 2017 11:33h. Untreated test specimen (ub.) already saturated with water and disintegrate.

Test specimen with Alphasoil®-06 after 24 hours 1cm deep in the water bath 21st July 2017 9:33h. The test-specimen weighed with 182g and returned to the water bath. 4g absorption of water after 24 hours continuously in the water bath. Untreated test specimen (ub.) already saturated with water and disintegrate.
Test specimen with Alphasoil®-06 after 48 hours 1cm deep in the water bath 22th July 2017 9:29h.
The test-specimen weighed again with **182g** and returned to the water bath. **4g** absorption of water after 24 hours continuously in the water bath. Untreated test specimen (ub.) already saturated with water and disintegrate.

Test specimen with Alphasoil®-06 after 48 hours 1cm deep in the water bath 22th July 2017 9:31h. The test-specimen weighed again with **182g**. **4g** absorption of water after 48 hours continuously in the water bath.
Conclusion:
178g initial weight
182g final weight after 48 hours in water bath 1cm deep
4g weight gain by water
2.25% weight gain by water

Water storage test passed because less than 5% weight gain and thus in tolerance.
For the soil stabilization with Alphasoil®-06 the clay-sand is very suitable because moisture and water insensitive.

The clay-sand material treated with Alphasoil®-06 shows a relative water insensitivity respectively liquid insensitivity. Capillarity and permeability is interrupt by the Alphasoil®-06 treatment. The superficial moisture absorption of 4 g is physical limited and affecting only at a small part of the surface of the test specimen and loses itself by evaporation.

This cohesive clay-sand is very suitable for soil stabilization / soil consolidation after and with Alphasoil®-06 and could be used for the various projects and applications. A very high-quality building material can be produced from the original very water- and moisture-sensitive cohesive material by adding the Alphasoil®-06 catalyst for the civil engineering industry.

For the actual determination of a meaningful load-bearing capacity value according to Evd or Ev2, however, the clay-sand material with the corresponding support grain addition such as gravel, should have to be tested in practice by an to constructed test track in the field.

Following a water storage test with half a brick of clay-sand from a previous broke test without Alphasoil®-06 treatment.