

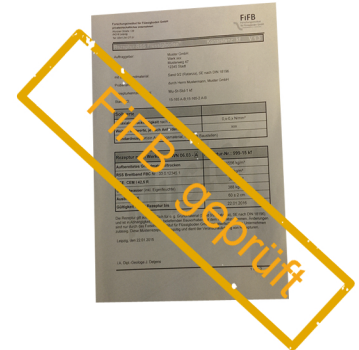
## RSS Flüssigboden® mix design

The basis for the production of RSS Flüssigboden® (liquid soil) is the application of a valid mix design. From 31 December 2012 on, the sole mix design developers for RSS Flüssigboden® are the Forschungsinstitut für Flüssigboden GmbH and the LOGIC Logistic Engineering GmbH

### Mix design development

Generally, a mix design is developed in our lab as follows:

- We obtain a sufficient quantity of source material (depending on the desired application at least 10 litres, with protocol of sample collection) and the cement to be used (CEM I R). Additionally, the customer provides the desired nominal values of the mix design properties. For this purpose, we use the form "Mix design Specification". In addition to the nominal values stated by the customer, the nominal values required for the liquid soil from our perspective are also relevant. We produce liquid soil in the soil laboratory, check the processability, and test the test specimens we produced. If the results meet the requirements, you get a preliminary mix design in hard copy. An employee of our company adjusts the mix design at your company/site. There may be deviations to the laboratory conditions during the adjustment. Therefore, again, test specimens are taken and tested for relevant deviations. If the results of the mix design adjustment are as required, you get an adjusted mix design.
- The functionality / quality of the mix design / production is ensured by initial testing / self-monitoring / external monitoring.



### Advantages

- Ensured functionality (warranty)
- Mix design adjustment on site
- Testing institute accredited by RAL
- External monitoring person accredited by RAL
- More than 30,000 testing data per year
- Experience since 1998

### Data

- costs basic mix design: €1092 net, additional costs possible
- validity of mix design: 1 year
- typical  $q_u$  value after 28 d: 0.08-0.3 N/mm<sup>2</sup>
- typical bulk density: 1.7-2.0 kg/dm<sup>3</sup>
- typical EV2 value after 28 d: >45 MN/m<sup>2</sup>
- typical  $k_f$  value after 28 d: 1.00E-07 to 1.00E-09 m/s
- environmental and water soundness according to expert's report

If required, the properties can be adjusted within limits.



### Properties of the liquid soil according to requirements and source material

- temporarily flowable
- self-compacting
- no settlement
- can be overbuilt quickly
- mechanically removable
- defined properties through quality management
- pumpable
- homogeneously with properties which are largely similar to the original soil properties
- performance properties, such as thermal conductivity, friction values, load bearing capacities, etc. adjustable within limits
- damping effect when exposed to dynamic loads
- simple production and handling eg with RSS system technology
- re-use of almost every excavated material possible
- compatible with conventional pipe materials

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