

## RSS Flüssigboden® mix design for pumpable RSS Flüssigboden®

Often, building sites or backfill areas are hardly accessible for truck mixers, which are needed for the production and the transport of RSS Flüssigboden®, as it is not or only hardly possible to access the respective areas, or the space is very restricted, or grounds can't bear enough load, or works have to be carried out behind or in buildings, or longer distances (several 100 metres) need to be overcome.

### Mix design development

The requirements for pumpable RSS Flüssigboden® are usually higher than for normal RSS Flüssigboden®. Temporarily effective technologically relevant properties of the RSS Flüssigboden® and defined end properties need to be guaranteed. RSS Flüssigboden® can be pumped with conventional concrete pumps (boom arm, hoses, pipes) and doesn't require any additional technical equipment. A mix design optimised for the prevailing boundary conditions of each construction project guarantees smooth pumping and ensures the desired properties of the placed and re-solidified RSS Flüssigboden®. It proves to be advantageous to feed the pump continuously from the mixing vehicles with the RSS Flüssigboden® produced locally or in the ready-mixed concrete plant. In addition to technical aids (RSS Pipe Laying Aids), by skilfully operating the pump and making use of the swivel range of a boom pump, it is possible, if necessary, to distribute the RSS Flüssigboden® so that the buoyancy of pipes and other built-in components can be mastered skilfully. Basically, the following rules should be observed:

- mix designs must be suitable
- pumping uphill works better than downhill
- the material has to stay in motion (thixotropy!)
- when backfilling cavities, either vent holes are required, or placement technologies you can inquire from us or your technical planner
- pump line min. DN100, narrowing of the cross section is not permitted, if the nominal diameter is smaller, coordinate with us

### How an RSS Flüssigboden® mix design for pumpable RSS Flüssigboden® is developed

We obtain a sufficient quantity of source material (depending on the desired application at least 20 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 RSS Flüssigboden® from our perspective are also relevant. We produce RSS Flüssigboden® 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. The quality of the production is ensured by self-monitoring / external monitoring.



pumpable RSS Flüssigboden®

### Advantages

- Mix design adjustment on site
- Testing institute accredited by RAL
- External monitoring person accredited by RAL
- Developers of RSS Flüssigboden®
- Successful application of pumpable RSS Flüssigboden® on many construction sites

### Data

- Costs basic mix design: €1040  
+ 2 samples settlement rate each €70.50,  
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 EV2 value after 28 d: > 45 MN/m<sup>2</sup>
- typical K value after 28 d: < 1.00E-08 m/s

If required, the properties can be adjusted within limits.



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