

Master Thesis

Study on durability aspects of ecological concrete with high content of OMYA limestone-fillers



Ecological concrete for precast elements was developed successfully in a recent research project at our institute by applying a combined filler concept. The environmental impact of eco-concrete could be reduced significantly compared to standard-precast concrete while the performance in terms of workability and early-age strength was equivalent or even better.

In the outlined research work supported by the company OMYA, eco-concretes with limestone fillers of different fineness in varied combination shall be investigated in terms of durability. The durability shall be tested in a series of different concrete mixes with varied filler-combination in our lab acc. to exposition classes defined in EN 206-1:

- XF1 (frost resistance)
- XD2 (chloride ingress resistance)
- XC3 (carbonation and water penetration resistance)
- XA1L (chemical resistance)

An evaluation of the performance depending on filler properties and mix-composition of the concretes has to be carried out.

Duration/ Lab Internship

A lab internship at the institute is offered for 6 months (= student employment at the institute 1 day/ week). In that time durability testing shall be carried out.

Cooperation with OMYA

A frequent exchange with the company OMYA is part of the research work, as well as visits of the mineral filler production and labs of OMYA in Austria (e.g. Mühlendorf) and Switzerland.

Contact

Supervisor: Dr. Joachim Juhart, joachim.juhart@tugraz.at phone: 0316/873 7161
and Dr. Florian Mittermayr (Institute of Technology and Testing of Building Materials)

Interested students can also contact Ao.Univ.-Prof. Dr.phil. Dietmar Klammer (Institute of Applied Geosciences).