# INFLUENCE OF HIGH-SHEAR MIXER AGITATOR TOOL TYPE ON THE PROPERTIES OF ULTRA-HIGH PERFORMANCE CONCRETE

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The main purpose of concrete mixing is homogenous distribution of different types of particles within the system. Failure in particle blending can result in poor concrete workability in the fresh state, low performance in hardened state and inefficient use of materials. In case of Ultra-High Performance Concrete (UHPC) mixing is even more difficult as system consists mainly of very fine particles with high surface area. Due to the low water-to-binder ratio, homogenous water and superplasticizer distribution is decisive to obtain good workability of mixture. Another problem is agglomerate formation of finest particles (e.g. silica fume). To overcome these problems high shear forces should be introduced in the mixture and more energy required.

In this study UHPC was produced in high-shear laboratory concrete mixer (Eirich) with capacity of 75 liters and possibility to record different mixing parameters (e.g. mix temperature, energy input, shaft torque, pan torque). Two agitating tools – pin-type and star-type agitator with different energy input potentials were used. Concrete properties in the fresh state (cone flow, L-box, air content) and hardened state (compressive strength) were determined.