

FINE-GRAINED CONCRETE MODIFIED BY INTEGRATED
MICRO-DISPERSIVE ADDITIVE

The purpose of the research consists in development of integrated micro dispersive additives designed for effective fine-grained concretes of the new generation and based on the inferior grade quartz sand.

The academic novelty of the research consists in substantiation of feasibility of generation of effective fine-grained concretes that demonstrate improved physical and mechanical properties due to the adjustment of the structure of the integrated micro additive developed by the authors.

The integrated additive comprises quartz sand milled in the ball mill together with C-3 plasticizer, the content of which is equal to 1 % of the mass of the material, and the milling time is 60 min.

Another objective of the research is the study of the effect of micro-additives produced onto physical-mechanical properties of samples of fine-grained concretes (dimensions 4×4×16 cm) made of cement M 500 D20 and quartz sand with $M_{CR} = 0,9$ and hardened according to the regular procedure.

Thus, the authors have discovered that the integrated micro-additive improves the compressive strength of the concrete to 50 MPa, flexural strength — up to 8,3 MPa, water absorption — to 1,4 % and frost resistance — to F75, while its content reaches 5—10 % of the cement mass.

Key words: fine-grained concrete, integrated micro-dispersive additive, quartz sand, super plasticizer C-3, calcium stearate, compressive strength, water absorption.

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