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An engineered production formula for enhanced artificial stone utilising stone cutting slurry and a superplasticiser

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Abstract

This paper demonstrates the technical feasibility of utilizing local industrial wastewater (stone cutting wastewater and marble cutting wastewater) with a superplasticizer in manufacturing artificial stone of enhanced quality.

The paper reviews the previous work and presents new experimental work. Artificial stone samples were casted according to two starting formulas obtained from local production facilities. Based on that, an engineered production formula was developed and tested, based on stone product quality. The investigated experimental parameters included compressive strength, water absorption, and workability of fresh concrete. The experimental results indicate that a high compressive strength and a low water absorption for artificial stone is technically feasible. In term of the compressive strength of artificial stone, the marble dust contributed better than limestone wastewater.