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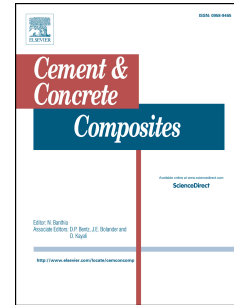
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Influence of Recycled Tire Polymer Fibers on Concrete Properties

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Abstract: This paper presents an experimental study of recycled tire polymer fibers (RTPF) used as a replacement for polypropylene fibers, evaluating the contribution of the cleaning procedure and defines the benefits for RTPF application in concrete. The density, air content, workability, heat of hydration, early age deformations, development of compressive strength, modulus of elasticity and freeze-thaw resistance of hardened concrete were tested. It was found that both, mixed and cleaned RTPF can be used in concrete production independently of its rubber contamination level. Up to 10 kg/m³ of mixed RTPF and up to 2 kg/m³ of cleaned RTPF did not negatively influence the mechanical properties of concrete. It was concluded that RTPF enhanced concrete behavior during the early age and when exposed to the aggressive environments.

Keywords: recycled tire polymer fibers; concrete; early age deformations; freeze-thaw resistance

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