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Characterization of Cementitious Polymer Mortar – Polyethylene Composites

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Abstract: The aim of this study is the design, fabrication and experimentally characterization of polymer mortar (PM) suchas polyethylene (PE). PE is used in packaging like plastic bag, plastic films, geomembranes, containers including bottles, etc, but rarely used in a composite or concrete. In this paper polyethylene has been very successfully applied to forming polymer mortar due to its good specific strength and low density. A series of laboratory experiments were investigated in the cement manufacturer in Morocco: LafargeHolcim Oujda. So In this study a portion of cement was replaced by polyethylene powder, with three different dosages (5%, 10%, 15% and 20%).During the first phase, physical and mechanical properties of these blended cements were determined (e.g. water demand, expansion and mechanical performance).The second phase included mechanical tests concerningthe specimensof these blended cements in a temperature ranging from 25 up to130 °C.The results showed that thermal cycle increased and enhanced strength potential of the polymer mortar.
Keywords: polymer mortar, polyethylene, thermal cycle, strength potential.

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