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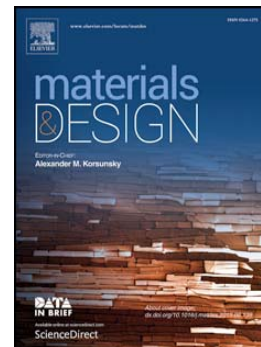
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## On Blended Cement and Geopolymer Concretes Containing Palm Oil Fuel Ash

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### ABSTRACT

This article discusses the utilization of palm oil fuel ash (POFA) in normal and geopolymer concrete. Malaysia, one of the world's largest producers of palm oil, produces more than 10 Mt/year of palm waste as ash, which is called POFA. Since 1989, extensive research has been conducted on its utilization in concrete. Several published studies have noted POFA's enormous potential as a partial replacement of cement in concrete. This paper describes the effects of using POFA on different fresh and hardened properties of concrete. The latest studies on the use of ground POFA revealed that concrete made from this material possesses better fresh properties and medium to higher strength than ordinary Portland cement (OPC) concrete. One of the major findings is that concrete that incorporates 20% fine POFA by weight of cement showed better durability properties than OPC concrete. Because limiting CO<sub>2</sub> emissions has become a matter of increasing importance in the construction industry, concrete that uses less cement in its production and utilizes an increased amount of waste, such as POFA, offers an environmentally viable solution. Moreover, 100% cement-free geopolymer concrete can be produced using blended ash, such as POFA and fly ash.

**Keywords:** Palm oil fuel ash; blended cement concrete; aerated concrete; geopolymer concrete; compressive strength; durability

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