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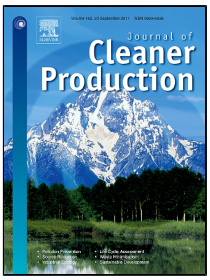

Phosphogypsum as a construction material

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Phosphogypsum as a construction material

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Abstract: Phosphogypsum (PG) is a by-product from the industry of phosphate fertilizer. Approximately 4-6 tonnes of PG are generated per tonne of phosphoric acid production. The continuous growth in the world population increases food production demand which requires an increase in phosphate fertilizer production resulting in an increase in PG content. Approximately 85% of this by-product is still discarded into the ocean or river, or stored in ponds or leaps without purification. This disposal causes serious contamination. Reduction in the disposal of this by-product has economic and environmental benefits. Extensive investigations have been carried out to reuse PG in different fields such as soil stabilization amendments, agricultural fertilizers, set controller in cement manufactures and building materials. This paper reviews the earlier studies which reused PG as a construction material. The effect of PG on some properties of the matrix such as workability, unit weight, mechanical strength and durability has been reviewed and discussed. The outcome of this review should place a base for the future investigations and uses of PG in sustainable methods.

Keywords: Phosphogypsum, Purification, Fresh properties, Hardened properties.

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