Use of spent garnet in industry: A review

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ABSTRACT
Globally, the increasing concrete production also creates growing demand for growing natural sand which is one of the vital mixing ingredients that act as filler to form a dense concrete. Excessive harvesting of river sand results in its depletion and destroys the existing river environment creating an imbalance ecosystem. Integrating industrial by-product as an alternative material to reduce the dependency on sand supply is attractive to ensure the sustainability of rivers. In relation to that, spent garnet which is derived from the surface treatment process in shipping industry and usually disposed as waste at landfill is one of the choices. Continuous practice of dumping this waste would consume the precious land space and pollutes the environment. Realization on the importance of environment sustainability has driven researchers to discover the possible use of spent garnet as sand replacement in concrete. Thus, this paper presents reviews related to properties spent garnet and its effect on concrete performance. On overall, the integration of suitable amount of spent garnet provides encouraging strength result. Success in integrating spent garnet as sand replacement in modern concrete would reduce its dumping at landfill thus contributing to cleaner earth and sustainable river environment.

KEYWORDS
Spent garnet; Sustainability; Fine aggregate replacement; Concrete; Properties

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