

## A Review on Utilization of Secondary Construction Material

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### Abstract

The secondary construction materials market has been around for a long time. However, it has largely been ad-hoc. Considering the supply chain, consistent raw material supply cannot be guaranteed, which can be attributed to poor C&D waste management practice. If the infrastructure was sufficient, there would be a problem with the distribution of secondary materials and products due to a lack of sufficient demand, which is a primary cause of many recycling failures. In short, the secondary construction materials market is currently not self-sustaining. By virtue of its nature, the secondary construction materials market has not been able to explore or demonstrate its full potential. According to studies, around 20-30% of the material generated in tile production factories ends up as trash. Ceramic tile trash is generated not only during the destruction of constructions, but also in the production process of ceramic tiles. To cope with the limited supply of natural aggregate and decrease building waste, this waste material can be reused. As a substitute for coarse and fine aggregates, crushed waste ceramic tiles and crushed waste ceramic tile powder are utilised. The ceramic waste crushed tiles were partially substituted in place of coarse aggregates, fine aggregates and binder by 10%, 20%, 25%, 30%, 40%, 50% and 100%. It has been discovered that replacing aggregates with ceramic aggregate enhances the strength of concrete blocks by up to 50% for fine aggregate replacement, by up to 40% for coarse aggregates replacement, and by up to 30% for replacing the binder. The world is experiencing population growth, rapid urbanization, and industrial output expansion. These developments have resulted in a multifaceted increase in demand for natural resources, in particular for materials. There is growing concern about the depletion of resources, harm to the environment and climate change. Large CO<sub>2</sub> emissions are involved in the manufacture of building materials such as cement, bricks and mortars, and their disposal often affects the environment, it is essential to minimize the environmental footprint of these materials as much as possible. If solid wastes, like demolished concrete and red clay ceramics, can be converted into useful products by exploiting their chemical reactivity, it would increase resource efficiency and reduce environmental damage[1]. Construction is not an environmentally friendly activity. The materials employed provoke an intense demand for natural resources, which has given rise to enormous environmental pressure. Among those, the so-called clay-based materials are one of the most used (facades, roofs, partitions, floors, etc.). Albeit, ceramics are based on some of the most abundant raw materials in the Earth's crust, the pressure of their manufacture has begun to take its toll on our surroundings[2]. In recent days construction and demolition waste represents a large amount of residues, among which the ceramic materials (mainly, bricks and tiles) are an important part as, in many countries [3]. The main objective of this work is to develop low cost and sustainable alternate building products like bricks. The research conducted on the use of ceramic as a substitute for fine aggregate, coarse aggregate and cement can be utilized for the production

of concrete blocks especially where low-cost housing is concerned and leading to more eco-friendly building products.

**References**

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