

Textile Sludge Management by Producing Paver Blocks [†]

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Abstract: Textile sludge is an unavoidable by-product discharged from wastewater treatment plants and becoming a great challenge in today's textile industry. Since the sludge is characterized by a high level of organic and inorganic components, including heavy metals, its accumulation is a burden to the industry. It affects the environment and human well-being adversely. Hence, it demands an alternative sludge disposal method. Therefore, the main purpose of this study was to investigate the physico-chemical sludge characteristics and suitability of utilizing sludge in the manufacture of paving blocks, partially with cement. The test results show the concentration of BOD, COD, and the chemical constituents viz. CaO, SiO₂, Al₂O₃, Fe₂O₃, MgO, SO₃, P₂O₅, K₂O of textile sludge were 11mg/lit and 361.6 mg/lit and 9.41, 1.58, 0.25, 7.74, 0.35, 15.65, 0.97, 0.14% respectively. Additionally, the proximate analysis in the moisture content of sewage, volatile matter, and ash content was 4.93, 44.67, 43%, respectively. This study creates an effort to reveal the feasibility of utilizing textile CETP sludge as a cement substitute in M20 grade paving blocks. The paving blocks forged with the textile sludge, a job as cement material at 0%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, & 50%. by weight of cement. The compressive and flexural strength step by step diminishes with increment in sludge proportion. 25% textile sludge will be utilized to induce compressive strength concerning 20 N/mm².

Keywords: CETP; chemical composition; compressive strength; Paver blocks; textile sludge.

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Conflicts of Interest

The authors declare no conflict of interest.