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## ANALYSIS OF TIMBERCRETE: SAWDUST-INFUSED CONCRETE MIXTURES

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### ABSTRACT

[This investigation aims to advance sustainable construction practices by investigating the feasibility and environmental benefits of incorporating sawdust instead of sand in concrete mixtures. By using sawdust, a byproduct of the forestry industry, in the process of making concrete, the investigation addresses the pressing need for resource conservation and waste reduction, since the construction sector is a significant user of raw materials. According to British European Norm Standard BS 8500-2:2023 for C35 grade concrete, the experimental programme examines how different percentages of sawdust \(0%, 5%, 10%, 15%, 20%, and 25%\) substituted for sand affect the physical characteristics of concrete, including its compressive strength, dry density, and water absorption. The workability, consistency, and strength of the sawdust-incorporated concrete mixes were assessed by a combination of techniques including sieve analysis, slump testing, casting and curing procedures, and compression tests. The results indicate a potential reduction in material costs and environmental impact with the ideal sawdust content by showing a negative association between the amount of sawdust and the concrete's density and compressive strength. A larger sawdust content was associated with higher rates of water absorption, highlighting the hygroscopic nature of sawdust and its implications for the durability of concrete. According to the investigation's results, it is possible to substitute concrete with up to 5 % sawdust, providing an environmentally friendly alternative to conventional concrete while still having sufficient mechanical properties for use in construction. It is recommended that further research be conducted to improve sawdust's compatibility with cementitious materials, increase the durability of sawdust-incorporated concrete, and create industry guidelines for its use. This investigation contributes to the body of knowledge on environmentally friendly building materials by promoting the use of sawdust and other eco-friendly substitutes in the building sector to reduce negative effects on the environment and increase resource efficiency.](#)

[Keywords: Aggregates, Concrete, Materials, Sawdust, Timbercrete.](#)

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