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SUGARCANE BAGASSE AS ALTERNATIVE CEMENT PUTTY

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ABSTRACT

In an effort to promote sustainable construction materials, this study explored the viability of utilizing sugarcane bagasse, an agricultural byproduct, as an alternative to traditional components of cement putty. Recognizing the environmental concerns associated with cement production, such as high carbon emissions and the depletion of natural resources, the research investigated the chemical and physical properties of sugarcane bagasse when combined with a binder. Sugarcane bagasse has high silica content, cellulose, hemicellulose, and lignin, making it suitable as a cementitious material. Preliminary analyses indicated that bagasse, with its fibrous texture and pozzolanic potential, could enhance the mechanical properties of cement putty while contributing to waste reduction.

Methodologically, the study embarked on a series of experiments to integrate varying proportions of treated sugarcane bagasse into a putty mixture composed of a binder and a base. The treated fibers, which were sieved and reburnt, were evaluated for their compatibility in

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replacement of cement and their effect on the overall mix. Properties such as adhesion, drying time, and structural integrity were meticulously tested. The results showed promising improvements in certain composites, such as increased tensile strength and reduced shrinkage, compared to traditional cement putty.

The research concluded that sugarcane bagasse can be a technically suitable and environmentally friendly alternative to cement for cement putty formulations. With appropriate treatment and incorporation methods, bagasse-enhanced putty could be considered for eco-conscious construction practices. Further investigation was recommended to optimize the mixture design and to evaluate the long-term performance of the new putty in various environmental conditions.