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TITLE OF PROJECT:

Internal Curing of Concrete with Wood Powder as Light Weight Aggregates- A Sustainable Approach.

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ABSTRACT (150-300 words):

Utilizing lightweight aggregates within concrete as an internal curing agent stands out as one of the most effective and practical approaches for reducing costs and ensuring the durable concrete designs. Sawdust or wood powder emerges as a promising candidate for fulfilling both of these objectives. This study aims to assess the viability of employing sawdust as an internal curing agent. To achieve this goal, the material properties of wood powder such as size analysis, water absorption and water desorption are examined. The mechanical properties of concrete are investigated after incorporating wood powder to replace fine aggregates, adhering to established standards.

The findings reveal that wood powder exhibits a notable water absorption capacity, reaching nearly 200% of its weight. The slump of Internally Cured concrete (IC) was found to be approx. 55 % higher than that of conventionally cured concrete. The density of IC concrete was observed to be little lower than that of conventionally cured concrete. Concrete mixes incorporating an optimal replacement amount in line with the internal curing concept exhibit comparable compressive strength in comparison to conventional mixes.

Consequently, it can be inferred that wood powder effectively serves as a suitable internal curing agent. Expanding on this, additional experimentation and research could be conducted to delve deeper into the utilization of wood powder as an internal curing agent.

KEYWORDS: Wood Powder (WP), Light Weight Aggregates (LWA), Internal Curing (IC) Sawdust (SD), Compressive Strength (CS), Split Tensile Strength (STS).

CATEGORY: Concrete Technology and Building Materials.