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TITLE OF PROJECT: I-SAND

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ABSTRACT:

The industrial waste such as Steel slag, Copper slag, Red mud, Bottom ash generated in India adds upto 100 million tonnes per annum. Due to the generation of such large amounts of wastes, proper disposal of these wastes cannot be ensured which results in unregulated dumping in river beds and landfilling which poses a considerable environmental risk.

In response to this environmental issue, this paper puts forth an inventive approach to utilize the industrial by-products such as Bottom ash, Copper slag, Red mud, and Steel into a sustainable construction material. This effectively addresses the depletion of natural resources, simultaneously mitigating soil and water contamination.

This investigation focuses on formulating an M20 grade mix, utilizing the suggested alternative fine aggregate known as I-Sand. The study explores a range of curing techniques, spanning from conventional methods like water curing to more progressive approaches such as internal curing and accelerated curing. Our objective is to thoroughly assess the mechanical and durability characteristics of the developed mix, making comparisons with results obtained from conventional concrete mixes using natural sand.

The significance of this research lies in its potential to revolutionize waste management practices in the industries, offering an environment friendly substitute that addresses the crucial issues of resource conservation and pollution prevention. By exploring alternative materials and curing methods, we actively contribute to the ongoing discourse on sustainable construction practices, advocating for a shift towards more responsible and environmentally sound methodologies in the construction industry.

KEYWORDS: Improper waste disposal, Bottom ash, Steel slag, Red mud, Copper slag, Alternative fine aggregate, Sustainable construction practices

CATEGORY: CONCRETE TECHNOLOGY AND BUILDING MATERIALS