## Patent Search

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| Invention Title | EXPLORING SUSTAINABLE ALTERNATIVES: SEA SAND CONCRETE WITH SILICON CARBIDE ADDITIVES |
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**Abstract:**

Concrete, a widely used and highly adaptable construction material, has traditionally relied on river sand as a key ingredient. However, the increasing demand for rive particularly in regions such as Andhra Pradesh, where Godavari sand is widely used, has led to significant environmental concerns due to the depletion of this vital na resource. In response, this experimental study explores the feasibility of replacing river sand with sea sand, supplemented with Silicon Carbide (SiC) additives, in conc preparation. Sea sand, classified as Zone-IV due to its finer grain size compared to Zone-II river sand, was sourced from Machilipatnam. Silicon Carbide powder, comr available in industrial sectors, was incorporated into the mix to enhance the mechanical properties of the resulting concrete. The experimental results revealed that c produced using sea sand exhibited higher compressive strength compared to conventional concrete made with river sand. Notably, concrete specimens subjected to displayed even further improvements in strength, showcasing the material's enhanced resistance to aggressive environmental conditions. This study highlights the po sea sand as a viable alternative to river sand, addressing the growing scarcity of the latter while minimizing environmental degradation. The addition of Silicon Carbid improves the concrete's performance but also opens avenues for further enhancements in its durability and strength. This research contributes to the ongoing effort sustainable construction, offering an eco-friendly solution to the over-exploitation of river sand. By adopting sea sand and Silicon Carbide as substitutes in concrete p the construction industry can take significant strides towards reducing its environmental impact and fostering more sustainable building practices.

Complete Specification

Description:1. FIELD OF INVENTION:

This invention relates to the field of construction materials, specifically concrete compositions that incorporate sea sand and silicon carbide additives to improve compressive strength and durability. The invention addresses the environmental concerns associated with river sand extraction and explores sustainable alternativ

2. BACKGROUND OF INVENTION:

Concrete, a globally used construction material, consists of cement, water, fine aggregates (sand), and coarse aggregates. River sand has traditionally been favored quality and availability, but its depletion, especially in construction-heavy countries like India, has raised environmental concerns. Over-extraction of river sand dam ecosystems, particularly in Andhra Pradesh, where Godavari River sand is heavily mined, necessitating the search for sustainable alternatives.
Coastal areas like Machilipatnam have abundant sea sand, but concerns over its finer gradation (Zone IV) and high chloride content, which could affect concrete du and workability, have limited its use. However, sea sand holds promise as a replacement for river sand if these challenges are properly addressed.
Silicon carbide, known for its hardness and stability, offers a potential solution. As a micro-reinforcement, it can improve the compressive strength and durability of sand-based concrete. Research on combining sea sand and silicon carbide in concrete is limited, making this invention critical for optimizing mix designs to balance strength, workability, and sustainability.

View Application Status



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