National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Evaluating the Pozzolanic Reactivity of Natural Pozzolans
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Venue	: CE Seminar Hall
Date and Time	: 17 Jul 2025 (10:00 AM)
Abstract	: Conventional pozzolans, such as fly ash and GGBFS, are limited and scarce nowadays. To ensure the continued production of durable, low-CO_2 concrete, high-quality pozzolans are essential. Natural pozzolans (NPs), such as calcined clay and pumice, can replace cement, and it's imperative to evaluate the pozzolanic reactivity of these NPs. This study investigates the pozzolanic reactivity and mechanical performance of a quaternary blended cementitious binder of pumice and calcined clay in different proportions. Various techniques have been used to quantify the pozzolanic reactivity, microstructural evolution, and mechanical properties of these proportions. The results reveal that calcined clay exhibits higher pozzolanic reactivity than pumice in the early stages of hydration, leading to enhanced compressive strength. It was observed that the mixture of pumice-to-calcined-clay (1:3) exhibited superior strength, high calcium hydroxide consumption, and enhanced formation of C-S-H and C-A-S-H phases. Keywords: Pozzolanic reactivity, calcined clay, pumice.