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Experimental study on Concrete curing agent using Calcium Bentonite powder without curing

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Abstract: Bentonite powder is considered to be the easily available and cost effective natural resources. This study covers the uses of Calcium Bentonite Powder as the main component for concrete curing agent to determine the properties of the concrete when comparing to normal water curing. Water is one of the most essential things in our life and it is demandable nowadays. To reduce the usage of water, here we are applying concrete curing agent and the results are discussed.

Key Words: Calcium Bentonite powder, Concrete curing agent, Demandable, Natural resources and water.

I. Introduction

Concrete curing agents were an important part of creating a strong durable concrete member. The article explored why they were necessary and the options for curing and sealing industrial concrete member. When concrete cured, water within the concrete evaporated. If water near the surface of a concrete slab evaporated too quickly, the concrete dried at the surface before drying further down the slab. A concrete curing agent formed a membrane over the top of the concrete slab while it cured. This stopped near the surface of the slab evaporating too quickly and hence helped to reduce cracking and dusting. When a slab had uniform strength it meant it could bear weight and withstand challenging environment more easily. So curing helped a concrete member performed to its full potential.

II. Materials and Methods

Cement

The type of cement used in this work was 53- grade OPC. The specific gravity of the cement was 3.15 and the fineness modulus was 7.5%

Fine Aggregate

Fine aggregate was river sand and having the specific gravity of 2.61 and its fineness modulus was 2.25%. The zone of fine aggregate was determined by Sieve analysis. As per Indian standards the zone obtained zone-II.

Coarse Aggregate

Coarse aggregate having a size of 12mm its specific gravity and fineness modulus were 2.65 and 5.96% respectively.

Calcium Bentonite Powder

The calcium Bentonite powder was bought from online. It was the main active ingredient of fuller's earth, probably one of the earliest industrial cleaning agents. It helped to reduce cracking and dusting when a slab had uniform strength.

TABLE 1: Properties of Calcium Bentonite Powder

Properties	Values
Swelling capacity	27.5 mins
Gelling time	2 mins
Moisture content	12%
pH	10