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Effect of Cnsl resin and Fly Ash on strength of concrete.

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ABSTRACT

The aim of this research is to study the effect on strength of concrete using cnsl resin and fly ash. Cnsl resin is taken in 1%, 1.5% & 2% proportions of sand and used as an admixture while fly ash is taken in 10%, 15% & 20% as a replacement of cement. Effect on strength will be checked using various proportions of cnsl resin and fly ash individually. Then mixing the best proportions of each i.e. whichever proportion gives the best strength and then checking the strength of concrete.

KEYWORDS: *Concrete, CNSL resin, Fly Ash, Compressive strength, Flexural strength.*

INTRODUCTION:

Concrete is a very strong and versatile mouldable construction material. It consists of cement, sand and aggregate mixed with water. The cement and water form a paste or gel which coats the sand and aggregate. When the cement has chemically reacted with the water (hydrated), it hardens and binds the whole mix together. The initial hardening reaction usually occurs within a few hours. It takes some weeks for concrete to reach full hardness and strength. Concrete can continue to harden and gain strength over many years.

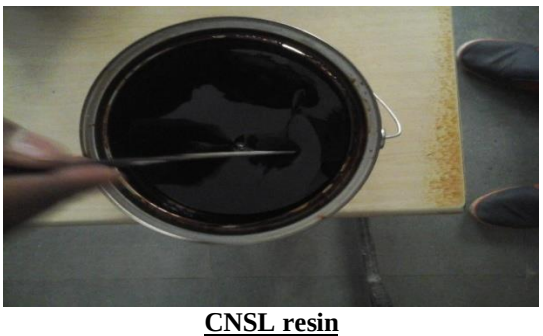
On its own, concrete has excellent resistance to compression (crushing), but is very poor in tension (stretching). To give it good load bearing capability when under tension, it has to be reinforced with steel bars (rebar), polymer strands or fibres.

As a construction material, concrete is employed to resist compressive stresses. While, at locations where tensile strength or shear strength is of primary importance, the compressive strength is used to estimate the required property.

MATERIALS:

1. **CNSL resin:**

   It's a dark brown viscous liquid obtained from the shell of cashew nut. This is a solid resin in lump form manufactured from Cashew Nut Shell Liquid (CNSL). It is a low melting point resin. Because of its dark colour, CNSL is used in the manufacture of dark coloured paints and enamels. Cashew lacquers are cheaper than ordinary oil varnishes.



CNSL resin

2. Fly Ash:

Fly ash is finely divided residue resulting from the combustion of powdered coal and transported by the flue gases and collected by electrostatic precipitator.

Fly ash is the most widely used pozzolonic material all over the world. In the recent time, the importance and use of fly ash in concrete has grown so much that it has almost become a common ingredient in concrete, particularly for making high strength and high performance concrete.

Fly Ash

EXPRIMENTAL PROGRAM:

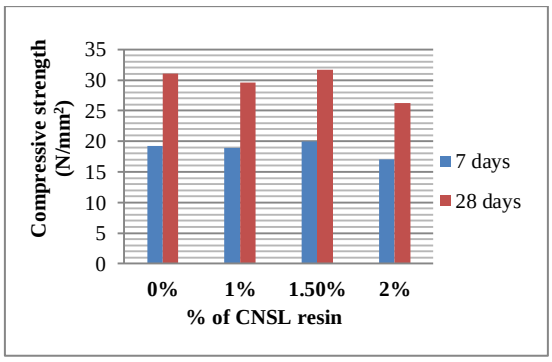
To check the compressive and flexural strength of concrete by addition of cnsl resin in proportion of 1%, 1.5%, 2% by weight in sand as an admixture and by addition of fly ash in 10%, 15%, 20% proportion as a replacement of cement.

To check the compressive and flexural strength of concrete by addition of best proportions of cnsl resin and fly ash.

RESULTS:

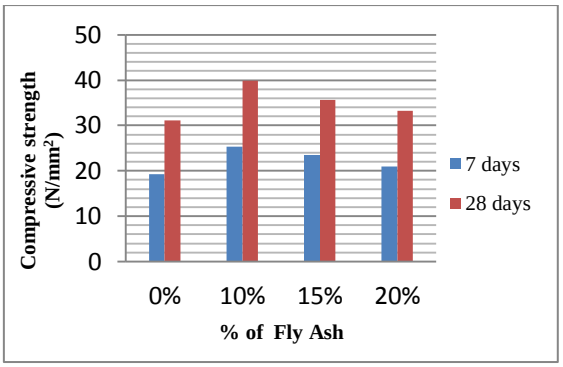
❖ **COMPRESSIVE STRENGTH:**

1. Different proportions of CNSL resin:



% of cnsl resin	0%	1%	1.50%	2%
7 days	19.25	18.96	20	17.03
28 days	31.1	29.62	31.7	26.22

2. Different proportions of Fly Ash:



% of F.A.	0%	10%	15%	20%
7 days	19.25	25.32	23.55	21.01
28 days	31.10	39.85	35.70	33.18

CONCLUSION:

Conclusions drawn from the study are listed below:

1. For different proportions of cnsl resin, 1.5% of cnsl resin gives the highest compressive strength.
2. For cnsl resin, compressive strength decreases at 2%.
3. For different proportions of Fly ash, 10% of Fly ash gives the highest compressive strength.

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