



## **Experimental analysis of waste foundry sand in partial replacement of fine aggregate in concrete**

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**Abstract :** Casting industries produce millions of tons of by-product throughout the world. In India, millions of tons of waste foundry sand is produced yearly. WFS are major by-product of casting industry and create land pollution. The river fine aggregate will be replaced with waste foundry sand (0%, 5%, 10%, and 15%) in the concrete. So that the land pollution can be reduced and the demand for the river sand can be reduced. Research has being carried out to know the exact percentage of waste foundry sand (WFS) should be replaced for fine aggregate in concrete.

This experimental investigation was done and found out that with the increase in the WFS ratio. Natural sand was replaced with five percentage (0%, 5%, 10%, 15%, and 20%) of WFS by weight. The sum of five concrete mix proportions (M-1, M-2, M-3, M-4 and M-5) with and without WFS were casted and found out how to reduce the slump and to increase workability of fresh concrete. Compression test has been done to find out the compressive strength of concrete at the age of 7, 14, 21 and 28 days. Test result indicates in increasing compressive strength of plain concrete by inclusion of WFS as a partial replacement of fine aggregate. The results also satisfy the acceptable limits set by the American Concrete Institute (ACI).

**Keywords:** foundry sand, fine aggregate, Concrete.

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