



## **Experimental Study on Concrete with Bauxite Residue as Partial Replacement of Cement**

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**Abstract :** Environment is getting worse in the present scenario and one of the causes is due to the industrial pollution and its waste. In this developing world, metal production especially aluminium is the most demanding material for manufacturing electronics, preservation of food by foils, containers, constructions purposes and so on. To make 1 ton of aluminium 2 tons of bauxite ore is required and is extracted by Bayer's process. The by-product called as red mud or red sludge. In India, there are about 3 billion tonnes bauxite reserves and is producing 4 million tonnes of red sludge as side product annually<sup>5,8</sup>. It contains ferric oxide, aluminium oxide and silicon dioxide as major constituents. Due to its presence in highly caustic content, it is unable to utilise in an alternative way and is dumped in large landfills<sup>3,7</sup>. So, by taking advantage of the cementitious property of this industrial waste, trials had been carried out to find the optimum usage of red sludge in concrete which is done by replacing in some percentages with cement.

**Keywords :** red mud, red sludge, bauxite residue, Industrial waste, red mud concrete, compressive strength.

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