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Guided By

PROF. AMAR SALARIYA /PROF. J.R.PATEL

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

" USE OF RED SAND AS A GREEN MATERIAL WITH REPLACEMENT TO NATURAL SAND IN CONCRETE"

Abstract:

The aggregate comprises a substantial portion of concrete. Including coarse and fine aggregates it is normally obtained from natural sources. Fine aggregate in India is usually extracted from River. As the demand for concrete production increases, more natural sand is needed. The need for fine aggregate should be addressed in an environmentally friendly manner, considering the diminishing sources of natural sand. Various industrial by-products, such as fly ash, ground granulated blast-furnace slag and silica fume, have been used in concrete to improve its properties. This also enables any environmental issues associated with their disposal. Another material that is available in large quantities and requiring alternative methods of disposal is the Bauxite Reside (Red Sand) from the Bayer process used to extract alumina from bauxite. Enormous quantity of Red Sand is generated worldwide every year posing a very serious and alarming environmental problem. Hence an investigation was carried out to establish its potential utilization as a sand replacement material in concrete. In addition to fresh properties of concrete containing Red Sand up to 100% by mass of Portland cement, mechanical and durability properties were determined. These properties indicated that Red Sand can be used to replace natural sand up to 100% by mass of cement to improve the properties of concrete without detrimentally affecting their physical properties. Combining these beneficial effects with environmental remediation applications, it can be concluded that there are specific applications where concretes containing Red Sand could be used.

Prepared By:

Sr. No.	Student Name	Enrollment No
1	BHAVSAR CHINTAN B.	100780106002
2	PATEL PARTH R.	100780106028
3	PATEL DARSHAN	100780106021
4	PATEL PARTH H.	100780106027