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MECHANICAL PROPERTIES OF OPS, PUMICE BASED LIGHTWEIGHT CONCRETE: A COMPARISONAL STUDY

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ABSTRACT:

Oil palm shell (OPS) is a bio solid waste in palm oil industry, Pumice is the naturally occurring stoneand both are used as aggregate in concrete mixture. OPS and Pumice has experimented as natural lightweight aggregates in research studies to produce lightweight concrete (LWC). The project study with the special concrete such as light weight concrete by using oil palm shell and Pumice as a replacer to the coarse aggregate individually, light weight concrete having low density, reduction of dead load. The reduction in density produced by using oil palm shell and pumice as a partial replacement of coarse aggregate in concrete. In this investigation M20 grade has used and coarse aggregate was replaced by various percentage of OPS and Pumice respectively i.e. 0%,10%,20%,30%,40%,50%. Then determine the compression, tensile strength of concrete to check the favorable replacement of OPS and pumice concrete. Finally, the results of pumice concrete are compared with results of OPS concrete. Light weight concrete is used for pavement filling and wall panels etc. From the test results, it could be summarized that OPS and pumice content should not exceed 30% of total volume of coarse aggregate.