

Abstract

This study investigated the potential use of sawdust and fish scales as aggregates in partial replacement of sand in the manufacture of masonry blocks. Both sawdust and fish scales are by-products of industrial processes and are considered to be organic waste materials. The methodology used in this study comprised of analyzing the physical properties and compressive strength of the samples. The blocks were manufactured by replacing sand by sawdust and crushed fish scales combined in the following ratios of 5%, 10%, 15% and 20% . Both sawdust and crushed fish scales were subjected to a pretreatment process that involved washing and sun drying them for 24 hrs to remove all impurities and moisture content in them. In the case of fish scales grinding had to be done. Then they were mixed with lime to allow for compatibility with the cement matrix at 5% proportion. Tests for the compressive strength for the masonry blocks were done on the 7th, 14th, 21st and 28th days. The compressive strength of the blended masonry blocks was found to be 15.7N/mm² at the age of 28 days which was found to be the optimum replacement level after replacement of 5%. The production of masonry with a replacement of up to 5% fine aggregates for the sawdust blend was found to be viable. This research therefore aims to assist the construction industry to achieve low cost housing by use of cost effective and environmentally friendly materials.