Leonardo Electronic Journal of Practices and Technologies Issue 8, January-June 2006
ISSN 1583-1078 p. 9-16

Characteristics of Wood ASH/OPC Concrete

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Abstract

The study presents the behaviour of wood ash / OPC concrete. Chemical analysis of wood ash, bulk density, sieve analysis and specific gravity of wood ash and aggregates, consistency, setting time and slump test of the fresh paste were conducted to determine the suitability of the materials for concrete making. Mix ratio of 1:2:4 and percentage replacement level of 0, 10, 20, 30 and 40 percents of cement by wood ash were used. 150mm×150mm cubes were cast, cured and crushed at 28 and 60 days to determine their compressive strength. Test result indicates that the wood ash is slightly pozzolanic, water demand increases as the ash content increases and the setting time of the paste increases as the ash content increases. Compressive strength of wood ash / OPC concrete it increases with age at curing with optimum replacement of cement by wood ash of 20%.

Keywords

Wood ash, OPC concrete, Chemical analysis

Introduction

Concrete is a construction material composed of Portland cement and water combined with sand, gravel, crushed stone, or other inert material such as expanded slag or vermiculite [1]. The major constituent of concrete is aggregate, which may be natural (gravel or crushed rock with sand) or artificial (blast furnace slag, broken brick and steel shot). Another