

MAKING LIGHTWEIGHT CONCRETE WITH SIDOARJO MUD AND RICE HUSK ASH AS ARTIFICIAL LIGHT WEIGHT AGGREGATES (ALWA)

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ABSTRACT

Disaster of Mudflow in Porong Sidoarjo, that releases continuously has caused huge of mud volume increase continuously. Therefore, one of the solutions to solve this problem is by using the mud as a base material of ACC (Aerated Autoclaved Concrete). It is rarely and it is the one of reasons why mud will be used.

AAC concrete is made from paste and artificial light weight aggregates (fine ALWA) with the composition of mixture made with the ratio of paste to filler was 1 : 0.25. The paste consists of 32.5% the calcined mud, 32.5% fly ash, 25% lime, 10% cement and 0.5% aluminum powder by weight of cement. Fine ALWA is made from the ratio of 100% Lusi : 0% rice husk ash, 70% Lusi : 30% rice husk ash and 50% Lusi : 50% rice husk ash. Combustion temperature variation of fine ALWA's temperature is 800°C with duration two hours, temperature 1000°C with duration ten minutes, four hours and six hours, temperature 1050°C with duration ten minutes, four hours and six hours. Then the obtained the best of the fine ALWA is AS-30-1050-6 with specific gravity 1.92 gr/cm³ made with the ratio of 70% Lusi : 30% rice husk ash burned at temperature 1050°C duration six hours.

Furthermore, AAC concrete is made from fine ALWA AS-30-1050-6 and AS-0-1050-6 which consists 100% Lusi burned temperature 1050°C duration six hours. And obtained the best mortar MS-0-1050-6, with composition of 100% Lusi temperature 1050°C durations six hours with the highest compressive strength of 4.835 MPa and density of 1145.1 kg/m³.

Keywords: Sidoarjo mud, rice husk ash, fine ALWA