EFFECT OF REPLACEMENT PART OFCEMENT BY SILICA FUME TO STRENGTH TO SEVERE TYPE OF LIGHTWEIGHT CONCRETE PRESS

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ABSTRACT

On the use of a pumice stone (pumce) as aggregate manufacture of lightweight concrete would be very appropriate to use because it will be easier to obtain because DIY is very abundant in the area and quickly. This study aims to determine the value of specific gravity and compressive strength of lightweight concrete using pumice aggregate using Silica Fume addition materials as partial replacement of cement.

Addition of Silica Fume in research using six (six) variant, namely: 0%, 3%, 6%, 9%, 12% and 15% Silica Fume. The concrete set with f as 0.45, sika men NN 3.98 and plastimenvz 0.7 of cement weight. Tests were performed on the compressive strength of concrete made after the age of 56 days. Data for each variation of Silica Fume mixture obtained from three (three) cylinder specimens measuring 15x30 cm.

Addition of Silica Fume at 0%, 3%, 6%, 9%, 12% and 15% respectively and density of 1.846.333 kg/m³, 1825.912 kg/m³, 1852.339 kg/m³, 1863.151 kg/m³, 1868.557 kg/m³, 1834.321 kg/m³, 0% and 12% increase in the optimal density of 1.203%. From the density of the lightweight concrete was included because its value is still below the rate 1900 kg/m³. Average compressive strength test value lightweight concrete with the addition of pumice breccias Silica Fume at 0%, 3%, 6%, 9%, 12% and 15% and 18.1609 respectively MPa, MPa 20.0015, 20.1292 MPa, 21.20 MPa, MPa 18.8072, 20.3979 MPa. The result showed that the compressive strength of concrete cylinders with the addition of 9% silica fume can increase the compressive strength of concrete at 16.734%.

Key Word: Lightweight, Silica Fume, compressive strength.