PHYSICAL AND MECHANICAL BEHAVIOUR OF POZZOLAN MORTAR BLEND RICE HUSK ASH FILLED IN COLD-FORMED STEEL STUB COLUMN

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ABSTRACT

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Nowadays, the number of underutilize of Rice husk (RH) increasing drastically as the rice production increasing in the world. Besides that, the use of cement in construction can cause a serious environmental condition and effect human health. In this research, the optimum percentage of silica in Rice husk ash (RHA) was filled into a mortar and CFS stub column. A study was conducted to determine the physical and chemical properties of RHA and to determine the mechanical properties of mortar and Cold-formed steel (CFS) stub column filled RHA. This research Preliminary leaching of RH with a solution of Hydrochloric acid (HCL) before incinerated at 550°C is to obtain relatively pure silica (>99%). The un-leached and leached RH were compared to observe the silica content in RHA. The incinerated 10 gram RH produce 34.58 percentage weight of silica. Amorphous silica (Si) particles were characterized by using Scanning Electron Microscope (SEM), Energy Dispersive X-Ray Spectroscopy (EDS) and X-Ray Diffraction (XRD). The morphological features of RHA displayed in SEM. The high silica content in RHA is determined in EDS and the amorphous peak was located at $2\theta = 23°$ in the XRD pattern. The optimum percentage of RHA obtained will be filled into a mortar and CFS stub column. The compressive behaviour of mortar and CFS stub column were conducted by using a compression strength test machine. The RHA filled into a mortar and CFS stub column can increase its compressive strength by reducing cracking and buckling failure.