

CHARACTERIZING PHYSICAL AND CHEMICAL PROPERTIES OF RESIDUES GENERATED FROM CONSTRUCTION AND DEMOLITION WASTE

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Due to rapid urbanization and population increase, the generation of Construction and Demolition Waste (CDW) is increasing in urban areas and industrial zones in developing countries. In order to promote sustainable development, it is important to have sound CDW management and recycling. Among of generated and dumped CDW, general masonry such as concrete and clay brick can be recycled for road construction and backfilling materials after suitable treatments like crushing and sieving. On the other hand, the reuse of fine residues (typically < 10 mm) faces some difficulties with regards to quality control and potential risk of hazardous materials. Based on the background, this study aims to characterize chemical and physical properties of CDW fines (especially for mortar samples). The testing samples were taken from 3 different demolition sites in Hanoi and Haiphong and a CDW dumping site in Hanoi. For the testing samples, two different fractions, one is bigger than 2mm and the other is grounded and sieved less than 2mm, were used for SEM-EDS analysis. Results showed that the samples with less than 2mm observed by 100 magnification of SEM became more stable (less spatial variability and following normal distribution). The measured Ca/Si values varied widely from 1.36 to 2.60 and became lower than that from a control mortar sample except for one sample from Hanoi demolition site. Further studies are planned to determine the mixing per cents of mortar and clay brick in CDW fines for characterizing the chemical composition and for promoting effective and safe use of recycled fines from CDW.

Keywords: Construction and Demolition Waste, Fine Residue, SEM-EDS