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Moisture Impact on the Utilization of Recycled Concrete Fine Aggregate to Produce Mortar

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Abstract : To achieve a sustainable concrete industry, reduce exploitation of the natural aggregate resources, and mitigate waste concrete environmental burden, one way is to use recycled concrete aggregate. The utilization of low-quality fine aggregate inclusively recycled concrete sand that is produced from crushing waste concrete recently has become a popular and challenging topic among researchers nowadays. This study provides a scientific base for promoting the application of concrete waste as fine aggregate in producing concrete by conducting a comprehensive laboratory program. The mechanical properties of mortar made from recycled concrete fine aggregate (RCFA), that is produced by pulse power crushing concrete waste are satisfactory and capable of being utilized in the construction industry. A better treatment of RCFA particles and enhancing its quality will make it possible to be utilized in producing structural concrete. Pulse power discharge technology is proposed in this research to produce RCFA, which is a more effective and promising technique compared to other recycling methods to generate medium to high-quality recycled concrete fine aggregate with a reduced amount of powder, mitigate the environmental burden, and save more space.

Keywords : construction and demolition waste, concrete waste recycle fine aggregate, pulse power discharge
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