

Carbon Capture, Utilization and Storage (CCUS): CO₂ Utilization in Building Construction (HCP-48) *Task 2: CO₂ Sequestration in Recycled Aggregates from construction and demolition waste (C&D waste) and Utilizing in Building products*

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Abstract

Construction and Demolition (C&D) wastes are processed to obtain the recycled aggregates of various fractions. These recycled concrete aggregates (RCA) are basically porous in nature with adhered cements paste around them. C&D waste is well-organized prospective calcium source for sequestering CO₂ because it is found to be rich in C-S-H and calcium hydroxide, which can produce thermodynamically stable minerals in the form of carbonates. The pores present in the adhered cement paste of recycled aggregates could serve as reservoirs for long-term CO₂ storage. Recycled fines from C&D waste are also good source for calcium with large surface area, which has potential to sequester CO₂. This project is focused to optimize the CO₂ uptake in these materials and their utilization in building products development for sustainable construction.

Objective: To exploit carbon sequestration in recycled aggregates (RCA) and the cement based recycled fine materials (CBRFM) for the applications in building products.