



3rd
INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Innovation in Cleaner Production through Concrete and Cement Composite Recycling

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Abstract

In the United Kingdom, most glass reinforced plastic (GRP) waste is currently sent to landfill due to its intrinsic thermoset composite nature, lack of information relating to its characteristics and insufficient knowledge of potential recycling options. Experimental attempts were made to recycle GRP waste in concrete and cement composites. As such, more than 190 concrete specimens were prepared in accordance with BS EN12390-2:2000 and BRE 1988 mix design for normal concrete and used GRP waste powder content varying from 5% to 50% as replacement for fine aggregates. Results showed that GRP waste can be used as a partial replacement for fine aggregate as well as an admixture in cement concrete. Additionally, the presence of polymer and short glass fibre content in GRP waste powder can significantly contribute to improve the quality of various concrete products and has ample scope for use in several applications in the construction sector.

Keywords: *Glass reinforced plastic (GRP); Recycling; Concrete composites; Cement composites; UK*
