

EVALUATION OF THE ENVIRONMENTAL BENEFITS OF BIOCHAR ADDITION INTO CONCRETE-BASED COMPOSITES

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Biochar is a carbon by-product obtained from a thermochemical conversion of biomass. Currently, biochar is generally treated in biomass landfill, representing an economic and environmental cost. Recent works focus their attention to the use of biochar as an alternative filler to produce more economic and environmental friendly composites. Some studies proved that the introduction of biochar as carbon filler can also increase mechanical [1] or electrical [2] properties. As a consequence, large scale production of composites containing biochar could have important effects both on the economic and environmental point of view. This work aims to identify and quantify the environmental benefits of using different percentages of biochar in concrete-based composites. To this aim, the scientific and standardized [3, 4] tool of Life Cycle Assessment (LCA) is used. The system boundaries of the study comprehend all the significant processes from the biochar treatment to the production of the final composites (*from-cradle-to-gate* analysis). Comparative environmental evaluations have been performed, according to different impact categories, between the standard products and the ones containing biochar.

References

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