Environmental Engineering and Management Journal

October 2025, Vol. 24, No. 10, 2231-2240
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu
http://doi.org/10.30638/eemj.2025.173

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REMODEL: CIRCULAR COMPOSITE MATERIALS DESIGN FOR A SUSTAINABLE INNOVATION OF MADE IN ITALY

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Abstract

The transition to a circular economy requires concrete strategies to transform waste into resources within production systems that are as local as possible. The 3F sectors: Food, Fashion, and Furniture, pillar of *Made in Italy*, generate waste streams that are often undervalued despite their high intrinsic potential. The REMODEL project, funded by the Italian National Recovery and Resilience Plan, explores how Italian excellence can embrace circularity by transforming scraps into innovative materials and products for circular productions. The goal is contributing to the debate on material and design-driven strategies for the circular economy in the 3Fs and to analyze the methodological and experimental outcomes in terms of material innovation and stakeholder involvement. The underlying hypothesis is that design can act as a catalyst to integrate waste recovery processes into local production systems, generating cross-sector synergies and new models of circular competitiveness. To do this, REMODEL has traced waste flows from regional excellences in Lombardy and Lazio, analyzing their potential and developing circular composite materials. The research has combined analysis and experimentation in the laboratory with co-design and prototyping practices in Open Labs. The research activity has developed new materials and prototypes, demonstrating technical feasibility and industrial relevance. The methodology adopted has condensed the experimentation, facilitated the exchange of materials between sectors, and allowed companies to concretely evaluate the applicability of new materials. The project proposes a replicable and scalable circular innovation model capable of generating territorial value and opening perspectives for circular production on a regional scale.

Key words: circular composite materials, circular economy, design-driven material, made in Italy

Received: May, 2025; Revised final: September, 2025; Accepted: September, 2025; Published in final edited form: October, 2025

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