



LIFE B3 FURN

Bio-based binder for furniture:
Fibreboard production with microfibrillated cellulose (MFC) as binder

THE PROJECT

The furniture and construction sectors strongly rely on the extensive use of the Medium Density Fibreboard (MDF), an engineered and highly versatile wood-based material that displays valuable properties, such as smooth finish, machinability, strength and consistency. Despite the remarkable performances that make the MDF an indispensable material for different applications, these panels present serious drawbacks, namely the difficulty of recycling, their formaldehyde content (a toxic substance that works as binder) and the large depletion of natural sources caused by their production. In this context, the European furniture and construction industries are currently facing serious environmental challenges due to the extensive production and consumption of the unsafe and unsustainable MDF-made products.

The LIFE B3 FURN project will be to bring to the market the **first fully 'circular' board, a formaldehyde-free wood panel made from 100% recycled material and 100% recyclable at end of life – called B3 Board (Board made with Bio-Based Binder) – with equal performance to the traditional MDF.**

The innovative concept proposed in the project, i.e., making recyclable formaldehyde-free wood-based panels for furniture and construction, is based on the use of the premium Microfibrillated Cellulose (MFC)-mineral composite (FiberLean® MFC) produced by the project coordinator FiberLean Technologies Limited. When applied in fibreboards production process, the FiberLean® MFC shows unique properties as binder, replacing toxic formaldehyde, improving product quality and reducing production cost.



THE OBJECTIVES

The LIFE B3 FURN project will demonstrate that a drastic waste reduction and GHG emission savings can be achieved in the furniture and construction sectors. The core technology consists in the production of the innovative B3 Boards, i.e., recyclable formaldehyde-free wood-based panels. To achieve this goal, the specific objectives are:

- To demonstrate the scalability of the technology for the B3 Board production by installing a demonstration plant producing boards with the surface quality equal to the traditional MDF.
- To optimise the B3 Board upgraded production process, by defining and fine-tuning the optimal parameters to deliver boards with required mechanical properties whilst maximising throughput and minimising cost, progressing from TRL6 to TRL8.
- To validate the B3 Board performances under an end-use perspective, assessing properties, confirming the surface compatibility with high-grade treatments required by the furniture market, and demonstrating the usability as a furniture component.
- To validate the sustainability of the B3 Board production process, assessing all the environmental benefits associated with the LIFE B3 FURN project considering a broad range of impact categories such as potential GHG emissions, depletion of resources and eco- and human toxicity aspects.
- To ensure continuation, replication and transfer of the project results, by engaging relevant stakeholders, implementing a sound commercialisation strategy, and outlining a business plan for the full-scale commercialisation of the solution.
- To increase awareness of the LIFE B3 FURN solution among general public, policy makers and the whole furniture and construction industries.

CONSORTIUM



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