BIO-UPTAKE

For this fourth newsletter, after having presented you the first two demo cases, we would like to focus on the last one: the feet insoles.

Currently: Feet insoles are made from glued layers and assembly of cut-outs from different non bio-based materials anatomically shapes. This generates a manual, multi-stage, time consuming, costly product being made.

What we aim: Within the BIO-UPTAKE project, the consolidation of layers is anatomically structured in a one shot free forming thanks to press consolidation and thermoforming made from COMFIL.
Only a final trimming is then required. PLA and PCL used and made from filament extrusion by CENTEXBEL, have the particularity of being bio-based and once the final shape is ready, to be warmed up for an anatomical adaptation. This allows a better reusability, recyclability and a more efficient and shorter process.

Let's see below with a picture:

If you have any questions, don't hesitate to ask us!

www.bio-uptake-project.eu

OUR PREVIOUS EVENT

After a few months ahead in the project, we already attempted several events where we could present/talk about BIO-UPTAKE.

JEC 2025

For this newsletter, we want to come back to the JEC World in Paris. We were delighted to share our project at the world's leading composites event, through a communication and discussions at our booth.

NEWS

Our second and third work package about respectively **Optimization and manufacturing of intermediate bio-composite formats and Optimization of the manufacturing processes for final bio-composite products** are coming to an end. Please see below few information regarding these tasks that can be shared:

Compounding of fibre reinforced bio-pellets

AITIIP has identified the four most promising biopellet formulations from the extrusions produced. This selection was based on a comprehensive evaluation of performance test results and the processing capacity of each material. The chosen formulations are:

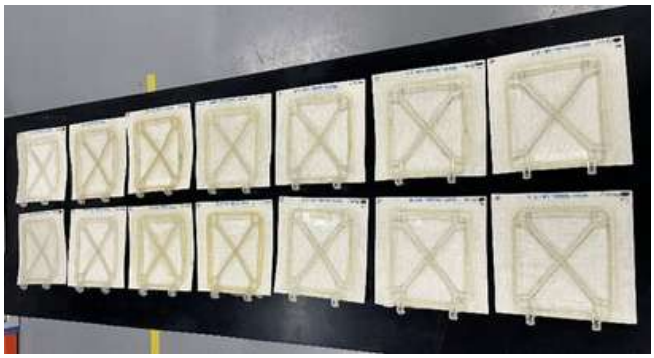
- PA1010 Raw
- PA1010 + 5% Recycled Carbon Fiber (rCF)
- PA1010 + 15% Wood Fiber
- PA1010 + 30% Wood Fiber

The chosen formulations have been subjected to specific mechanical tests at different temperatures to feed the over-injection simulation model. Once the materials for scale-up were selected, additional characterization tests were performed on the bio-pellets. The data obtained from these tests will be used as input parameters for the overmolding process simulation model, which is explained below

Over-injection of tertiary packaging

To produce the new product through an over injection process, Moses has developed a new mould that will allow to overinject PLA laminates with biobased PA thermoplastic materials developed in the project. At this point Moses has demonstrated the potential of the overinjection technologies and the capacity to overinject these PLA laminates with PA grades, while using a reversible epoxy system to allow the disassembly process.

Currently, Moses is looking forward towards the automatization of the process and the design of a new and more complete digital process that would allow to integrate this line of products into its portfolio with a full demonstration of the technologies and capacities.

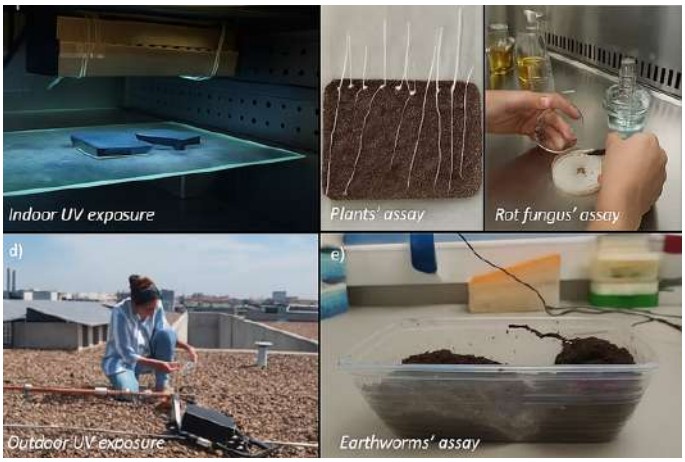


Fast quality control measures of the final products

An artificial vision system has been developed for quality control, which allows defects to be detected accurately and in real time. This technology improves the efficiency of the production process, reduces human errors and guarantees products.

Environmental and Human safety characterisation

After initially focusing on the safety of raw materials, such as fibers, polymers, and resins gently provided by other consortium members, the University of Aveiro is now evaluating the safety of the final products. To achieve this, they employ a range of approaches designed to replicate the realistic conditions of their usage. For the trash can lid for example, tests are being carried out under simulated indoor and outdoor light exposures, followed by an assessment of the ecotoxicity of leachates on both terrestrial and aquatic organisms.



If you are interested in the solutions we have developed or would like to know more, please don't hesitate to contact us!

NEXT EVENTS

You want to meet us in person, so don’t hesitate to come to these events and follow our social media to see where we will be located!

- **K 2025**: 08/10/2025-15/10/2025, Düsseldorf (Germany)
- **S3 Congress** : 05/10/2025 - 06/10/2025, Lyon (France)

For the K2025, you can even join us around a cocktail to talk about the project, so don’t hesitate

MORE INFORMATION ON BIO-UPTAKE

If you want to know more about us, visit our LinkedIn page to see the presentation of the different partners. You will discover most of the members involved in the project and their role with videos and images!
Stay connected with us and we will resume our content with another newsletter around the end of the year.

Register to our newsletter

Funded by the European Union

The BIO-UPTAKE project has received funding from the European Union under the grant agreement n°101057049