VITAL

InnoVatIve processing Technologies for bio-based foAmed thermopLastics

VITAL is an EU-funded research and innovation project contributing the creation of innovative high efficiency, low-cost processing solutions and key enabling knowledge to achieve commercially viable “Sustainable by Design “approaches based on bio-based thermoplastics (b-bTPs). Adoption of the VITAL outputs across the polymer processing sector, along with the vocational training programme, will therefore make it easier for manufacturers to adopt b-bTPs commercially, achieving a paradigm shift towards bio-based alternatives for cleaner, more climate neutral industrial value chains.

Objectives

- To develop 3 different b-bTPs manufacturing processes across 3 different value chains.
- To develop a digitally optimised mechanical recycling approach for b-bTPs.
- To develop an optimised recycling additives package.
- To develop b-bTP blends with optimised carbon balance.
- To create a database of foamed b-bTPs parameters.
- To create Circular/Sustainable by Design Business Models.
- To up-skill workforce through creating a VITAL “Learning Factory”.
- To industrially manufacture chemically or physically foamed b-bTPs.

Technologies

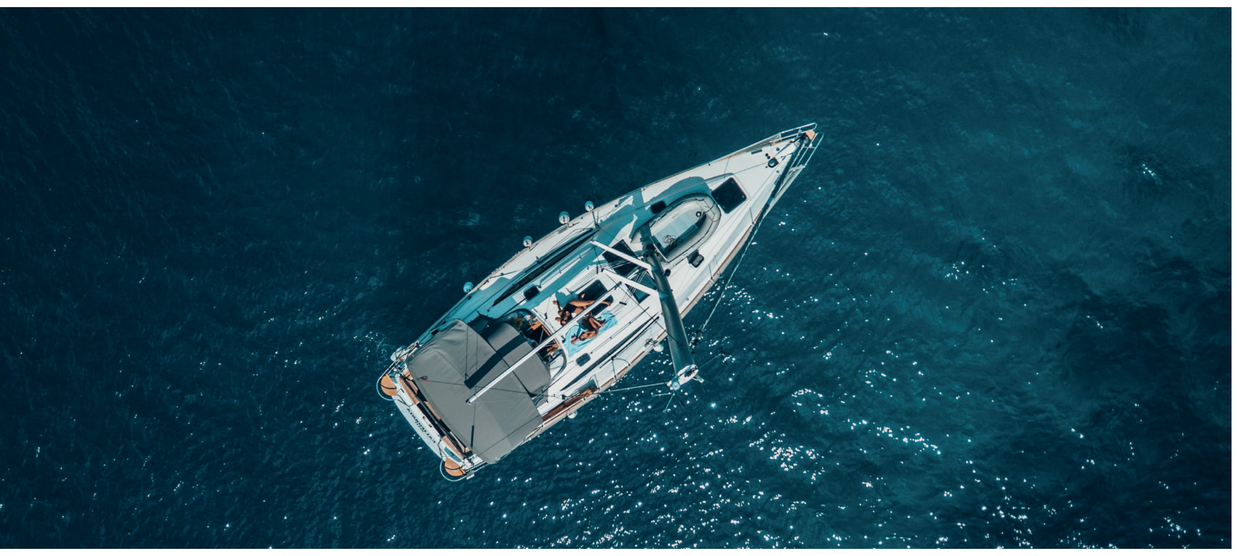
Foam Injection Moulding process
- Creation of unique database of foamed b-bTPs properties
- Digital Twin with Virtual AI control

Bead foaming of b-bTPs processes
- Radio frequency technology
- Moulding of b-bTPs

Globally unique 3D foam printing process
- 3D b-bTPs foam printing
- Computer model to simulate 3D foaming process

End user applications:

Automotive **Marine** **Home Appliances**



Specifications and benchmarking (WP1)

Value Chain Process development

Value Chain 1, 3D Foam Printing (WP2)

Value Chain 2: Bead Foaming and autoclave foaming (WP3)

Value Chain 3: Injection molding and foam molding (WP4)

Demonstration of use cases (WP5)

Sustainability (WP6)

Training, Dissemination, Exploitation and Communications (WP7)

Project Management (WP8)

"This project has received funding from the European Union’s Horizon Europe research and innovation programme under grant agreement N° 101058328"

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