

Project idea: REC-LITE (Recyclable LITE weight Materials)
Lightweighting Commercial Vehicles and Buses with Recyclable Thermoplastic Composites

Call area: Euraka Lightweighting Call 2025

Contact

Company/Institute: Telateks Tekstil Ürünleri Sanayi ve Ticaret A.Ş. (**METYX Composites**)

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Project Description

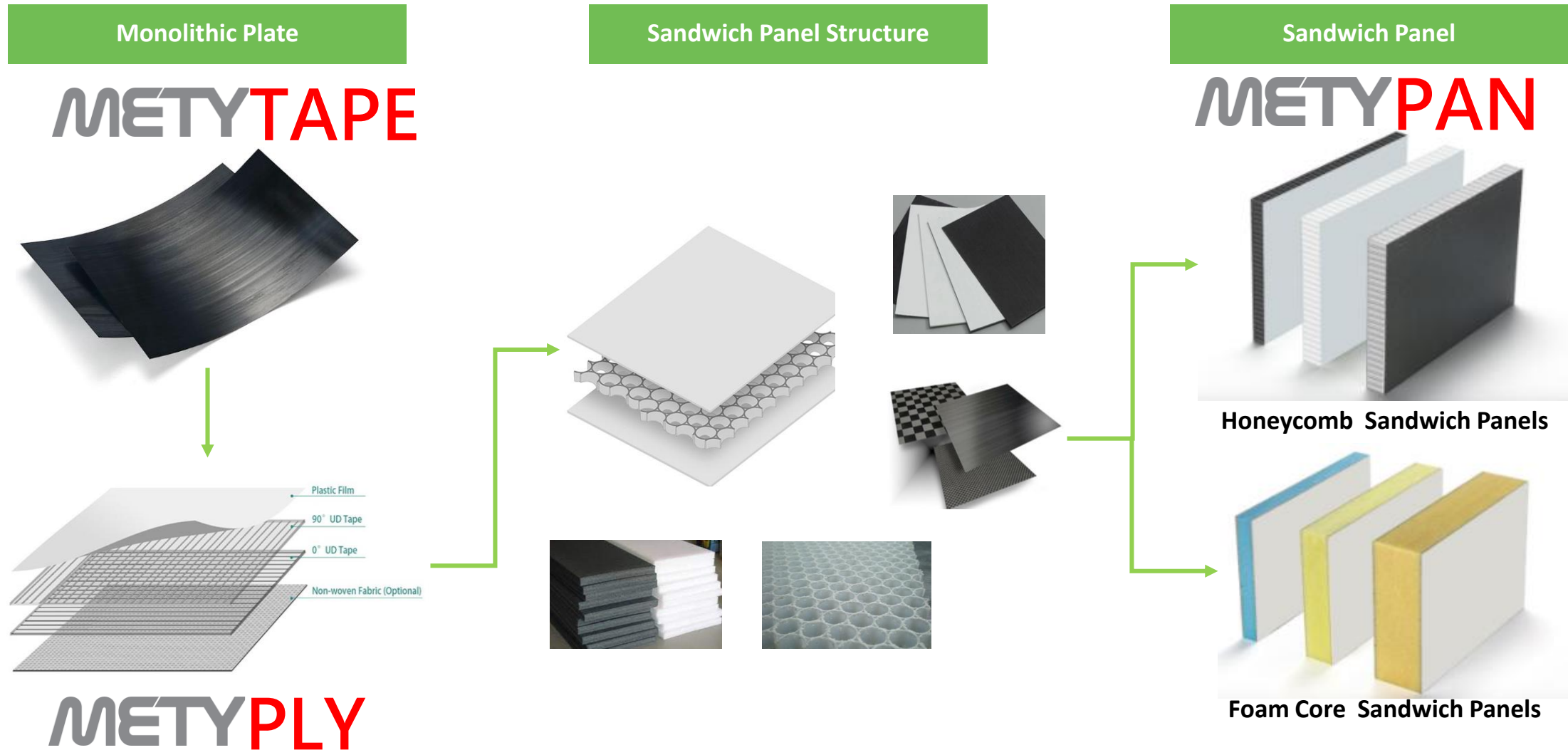
This Eureka project will develop and industrialize a new generation of recyclable, high-performance thermoplastic composite laminates and sandwich panels for commercial vehicles and buses. By leveraging our proprietary continuous-fiber-reinforced thermoplastic composites, we will manufacture structural laminates and sandwich panels that replace conventional glass-fiber-reinforced polyester (CTP) roof modules and plywood-based floor assemblies.

Project Objectives

- **Weight Reduction & Fuel Efficiency:**
Achieve a $\geq 20\%$ mass saving over traditional CTP roof panels and $\geq 20\%$ over plywood-insulation floor systems, directly reducing vehicle fuel consumption and CO₂ emissions.
- **Circularity & Sustainability:**
Utilize 100% thermoplastic matrices to enable mechanical recycling and reprocessing at end-of-life, in line with EU sustainability targets.
- **Mechanical Performance & Durability:**
Demonstrate equal or superior stiffness, impact resistance, and fatigue life compared to incumbent materials through comprehensive mechanical, thermal, and environmental testing.

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Problem, State of the Art, and Envisioned Solution

Problems & State of at the Art

- Heavy, non-recyclable CTP roofs and plywood-insulation floors drive \uparrow fuel use & CO₂
- Thermoset composites and wood cores conflict with EU circular-economy goals
- Moisture uptake & thermal cycling reduce durability in current materials
- OEMs face increasing regulatory pressure to lower vehicle weight and end-of-life impact
- Lack of recyclable alternatives hampers sustainable design targets

Envisioned Solution

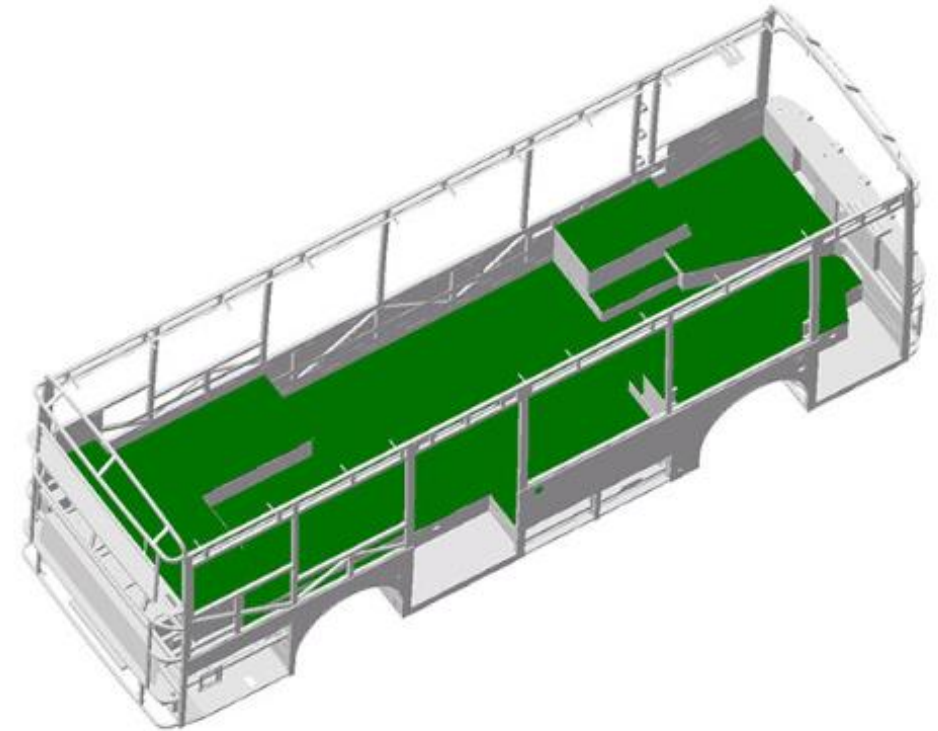
- Thermoplastic composites monolithic roof skins (≥ 60 wt % continuous glass fiber) for
- Thermoplastic polymer foam cores co-laminated thermoplastic composite skins for ultra-light, insulated floor panels
- 100 % thermoplastic, fully recyclable at end-of-life; validated on a pilot production line
- Full-scale prototypes will undergo crash, vibration, fatigue, and environmental testing
- Solution offers OEMs a drop-in replacement to meet weight, durability, and sustainability goals

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Envisioned Solution

- ✓ Weight Reduction – Only 8-11 kg/m², vs. plywood 15-18 kg/m²
- ✓ Fuel Efficient – Lighter floors improve vehicle performance
- ✓ Impact Resistant – Ensures long-term durability
- ✓ Waterproof & Fireproof – Safe and eco-friendly
- ✓ Good Thermal and Sound Insulation
- ✓ No Formaldehyde Release



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Envisioned Solution

✓ Aerodynamic Impact:

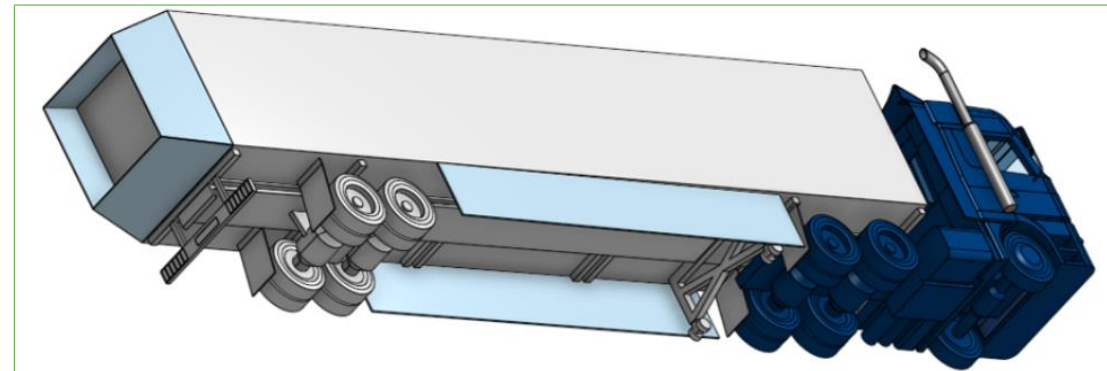
Trailer skirts reduce airflow underneath the trailer, lowering aerodynamic drag and improving stability, especially at high speeds.

✓ Fuel Savings:

Studies show that trailer skirts can provide fuel savings of 4% to 7%, depending on design and ground clearance.

✓ Cost & Return on Investment (ROI):

Although installing trailer skirts comes with an initial cost, fuel savings help recover the investment within 1 to 2 years.



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Our Partners, Our Know-How...

Our Know-How;

- High-Performance Thermoplastic composite production
- Advanced Thermoplastic Composite Lamination
- Thermoplastic composite Material surface preparation
- Pilot Production & Scale-Up
- Engineering ,Design and Testing based on Automotive Qualification
- Circularity & Recycling of Thermoplastic Composites

Our partners;

Fiber and Thermoplastic Polymer Raw Material Suppliers,
 Commercial Vehicles and Bus OEMs, Testing Labs,
 Adhesive Suppliers.

We are looking for...

- Additional BUS OEMs
- Additional Commercial Vehicle OEMS
- Trailer Manufacturers

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