

Integrated manufacturing of REciclable multi - material COMposites for the TRANSport sector



THE PROBLEM

Transport represents almost a quarter of Europe's greenhouse gas emissions and is the main cause of air pollution in urban areas. Emissions of air pollutants from transport that harm our health and our environment need to be drastically reduced without delay and thus be aligned with the European targets and directives.

THE NEED

Lowering the transport weight not only improves fuel efficiency, reducing air pollutants but also increases vehicle performances, decreasing the load on the brakes and suspension systems and facilitates the introduction of the electric vehicles.

THE OPPORTUNITY


Multi-material composites give transport manufacturers the possibility to reduce weight and to build parts with distinct shapes and visual appearances in their vehicles. The problems to introduce multi-material composites into major vehicles components are high cost, long production times and lack of recyclability.

RECOTRANS PROJECT will integrate unconventional manufacturing technologies such as (microwave) MW radiation and laser joining in current RTM and pultrusion production lines to be able to obtain cost-effective recyclable multi-material composites suitable for the transport sector at high production rates, reducing cost and energy consumption compared to current composite materials.

An intelligent process monitoring system will be integrated in the production lines for the efficient quality and process control, including a maintenance predictive system and securing in-process inspection of parts quality. Three different demonstrators will be produced: one for the automotive sector, one for the truck sector and one for the railway sector.



Production time reduction from **10 to 50%** by means of the reduction in polymerization time.

Energy saving by at least **10%** because of the reduction in the temperature losses and the reduction of cycle time. 



Cost reduction up to **35%** due to weight reductions which involve a reduction in operational costs, reduction in raw materials needed for joining metal structures and reduction in maintenance cost.

Results of RECOTRANS Project are also optimal for other sectors: small windmill blades for domestic electricity generation; sports products, human – protective armours, profiles for the building industry, panels made out of the thermoplastic (such as aeronautics cabinets), etc.



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