

AZL Joint Partner Project

# Thermoplastic Pressure Vessels

Development and benchmarking of design-  
for-manufacturing-strategies to optimise  
material efficiency and cost



Excellence in Lightweight Production

Hydrogen Pressure Vessels for mobile and stationary applications offer a huge economic potential for the composite value chain. Due to higher demands for material recyclability and advantages in production, a large interest in substituting thermoset by thermoplastic resins exists. A compensation of the higher material costs is only possible, when rethinking the design and manufacturing strategies. Processing options offered by thermoplastic composites can lead to new highly efficient designs and better utilization of these valuable materials, and by that reduce cost- and increase storage efficiency.

## What will you get?

Expert assessment and evaluation of Design for Manufacturing Strategies for Pressure Vessels based on thermoplastic resins. Cylindrical and non-cylindrical designs will be covered.

- **WP1:** Screening of research landscape and market situation for thermoplastic pressure vessels for mobile and stationary applications (gas storage, transportation, utilization - vehicles, aerospace, industrial, energy).
- **WP2:** Development of alternative designs and manufacturing sequences for (sub) components/sections of thermoplastic type 4 and type 5 pressure vessels in a concurrent engineering approach. Technologies concerned e.g. winding, ATL, patching, fiber steering, braiding, forming, compression moulding, injection moulding, glueing, welding, tapes, LFT, sheets,...
- **WP3:** Cost- and performance benchmarking of the analysed strategies

## Follow-Up to this Consortium



## Open to join

**Project Start: July 16<sup>th</sup> 2025**

**Duration: approx. 9 months**



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