

## AZL's Joint Partner Project Kick-Off: Fostering Connections and Enhancing Expertise in Hydrogen Pressure Vessel Technology

AACHEN, December 2023 — The kick-off meeting for the "Trends and Design Factors for Hydrogen Pressure Vessels" project, recently held at AZL Aachen GmbH, was a successful event, bringing together more than 37 top experts in the field of composite technologies. This event laid a solid foundation for the Joint Partner Project, which currently comprises a consortium of 20 renowned companies from across the composite pressure vessel value chain: Ascend Performance Materials, Cevotec GmbH, Chongqing Polycomp International Corp. (CPIC), Conbility GmbH, Elkamet Kunststofftechnik GmbH, F.A. Kumpers GmbH & Co. KG, floteks plastik sanayi ticaret a.s., Formosa Plastics Corporation, Heraeus Noblelight GmbH, Huntsman Advanced Materials, Kaneka Belgium NV, Laserline GmbH, Mitsui Chemicals Europe GmbH, Plastik Omnium, Rassini Europe GmbH, Robert Bosch GmbH, Swancor Holding Co. Ltd., TECNALIA, Toyota Motor Europe NV/SA, Tünkers do Brasil Ltda.

The project follows AZL's well proven approach of a Joint Partner Project, aiming to provide technology and market insights as well as benchmarking of different material and production setups in combination with connecting experts along the value chain.

The kick-off meeting not only served as a platform to foster new contacts and get informed about the expertise and interests of the consortium members in the field of hydrogen pressure vessels, but also laid the groundwork for steering the focus of the upcoming project's ambitious phases. As a basis for the interactive discussion session, AZL outlined the background, motivation and detailed work plan. The central issues of the dialogue were the primary objectives, the most pressing challenges, the contribution to competitiveness, and the priorities that would best meet the expectations of the project partners.

Discussions covered regulatory issues, the evolving value chain and the supply and properties of key materials such as carbon and glass fibres and resins. The consortium defined investigations into different manufacturing technologies, assessing their maturity and potential benefits. Design layouts, including liners, boss designs and winding patterns, were thoroughly considered, taking into account their implications for mobile and stationary storage. The group is also interested in cost-effective testing methods and certification processes, as well as the prospects for recycling into continuous fibres and the use of sustainable materials. Insight was requested into future demand for hydrogen tanks, OEM needs and strategies, and technological developments to produce more economical tanks.

The meeting highlighted the importance of CAE designs for fibre patterns, software suitability and the application dependent use of thermoset and thermoplastic designs.

*"The richness of the discussion outcomes demonstrates the comprehensive approach of our project and the value it should bring to participants. We are eager to integrate these findings into the detailed planning of the project, with the first report meeting scheduled for 7 February 2024. Within this meeting, we will provide a comprehensive review of state-of-the-art applications, design considerations and production technologies."*, says Warden Schijve, Design Leader at AZL.

The first report meeting will also set the stage of the next project phase, which will be the creation of reference designs by AZL's engineering team. These designs will cover a range of pressure vessel configurations using a variety of materials and production concepts. The aim is to develop models that not only reflect current technological capabilities, but also provide deep insight into the cost analysis of different production technologies, their CO<sub>2</sub> footprint, recycling aspects and scalability.

AZL's project remains open to additional participants. Companies interested in joining this pioneering initiative are invited to contact Philipp Fröhlig for further information and to explore how they can contribute to and benefit from this cutting-edge project.

## Contact

Philipp Fröhlig

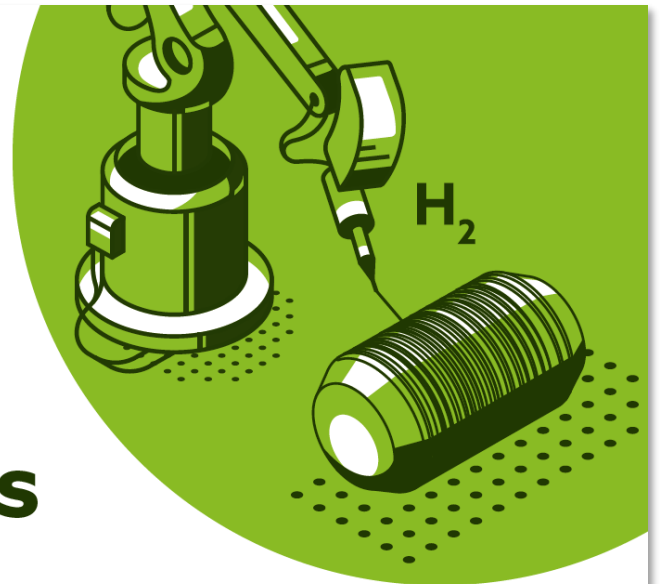
Head of Industrial Services

Mail: [philipp.froehlig@azl-aachen-gmbh.de](mailto:philipp.froehlig@azl-aachen-gmbh.de)

Phone: +49 241 475 735 14

Joint Technology & Concept Study

# Trends and Design Factors for Hydrogen Pressure Vessels



## About AZL Aachen GmbH

AZL stands for excellence in lightweight production. As one-stop shop for market and technology know-how, the senior staff of AZL supports companies of the entire value chain, in the development, benchmarking and improvement of design methodologies, manufacturing techniques and products. Located in the heart of one of the leading high-tech ecosystems, RWTH Aachen University, AZL assist in experimental evaluation of all relevant technologies related to composite-based multi-material technologies with decades of technology expertise and cutting-edge infrastructure.

In addition to individual cooperation, the AZL Partnership framework offer access to services and a network of 80+ international companies along the lightweight value chain. With three pillars advisory, engineering and partnership network, the AZL develops competitive innovations for economically highly relevant market segments and finds suitable partners for industrial implementation and establishment in the market.

[www.lightweight-engineering.de](http://www.lightweight-engineering.de)

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Image 1 - 3: Project-consortium at the Kick-Off-Meeting



*Image 4: Portrait of project leader Warden Schijve, Design Leader at AZL Aachen GmbH*