

AZL industry network starts concept study and product development of Multi-material battery casing for electromobility

Aachen/Germany, September 9th, 2020

On October 22nd, 2020, AZL together with an international industrial consortium consisting of automotive OEM Audi and suppliers along the value chain, including Asahi Kasei, Covestro, EconCore, IPTE and Johns Manville and many more, will launch a joint project to develop a multi-material battery casing. The 8-month product development will start with an international market analysis as well as a concept study in which different multi-material component concepts including production scenarios will be developed and evaluated with regard to their costs. Finally, a final multi-material battery casing is designed in detail, which will be manufactured as a prototype in a follow-up project. Interested companies can initiate their participation in the project until October 22nd, 2020.

The demand for electric vehicles is increasing and with it the need for lightweight and robust battery casings. A large number of different battery casings with very different component concepts already exist on the market. However, these battery casings, which are usually made of aluminum and steel, cannot offer the optimal solution for each of the numerous requirements. The project that emerged from the AZL Partnership instead pursues a multi-material approach that uses the right material at the right place for each specific requirement.

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"Battery casings are a key component in electric vehicles. The requirements are challenging and very individual for different vehicle classes," says Dr.-Ing. Florian Meyer, project management mentor from the Technical Development department of Audi AG. "We are looking forward to the creative exchange with the cross-value chain and cross-material class consortium to find out how we can save weight and costs by using plastic-based multi-material solutions versus status quo solutions made of metals."

The AZL will initially draw up a market overview with the industrial consortium that includes existing series components and concepts and identifies the relevant manufacturers, users, suppliers and supply chains on the market. Standards and requirements for battery casings will be derived from the existing components and the advantages of multi-material approaches will be evaluated. On the basis of a detailed data sheet, various product concepts will be worked out and associated production scenarios for multi-material battery casings will be established. The participants can select component concepts for which CAD models, FEM analyses and process chains are developed and finally evaluated with regard to their production costs. A final multi-material battery casing will be worked out in detail and will be manufactured as a real battery casing prototype after this 8-month development project.

The kick-off of the project will take place on October 22nd, 2020 within the framework of a video conference.

Further background information on the development of the battery casing market and details of the project can be found under the following links:

- Project description: https://azl-aachen-gmbh.de/wp-content/uploads/2020/07/2020-250_OP_Battery_Casing.pdf
- Overview about this project and more starting joint projects at AZL: <https://azl-aachen-gmbh.de/portfolio/joint-rd-projects/>

Interested companies can contact Philipp Fröhlig:

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Pictures

Download of pictures and additional material in good resolution:
<https://my.hidrive.com/share/v-pbyu9abz>



Figure 1: The majority of existing battery casings for electric vehicles are made of steel and aluminum.

Concept Study & Development of a Multi-material Battery Casing

Project Procedure & Scope of Work

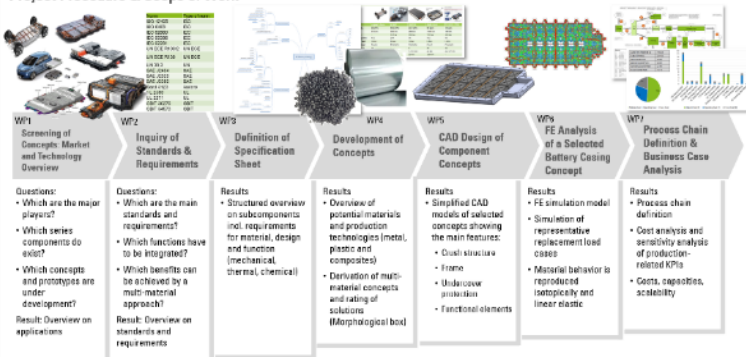


Figure 2: The 8-month project will provide an overview of existing solutions for battery casings, evaluate the advantages of multi-material approaches, derive component design and production concepts and evaluate them in terms of performance and cost. A component concept will be elaborated in detail. Copyright: AZL Aachen GmbH.

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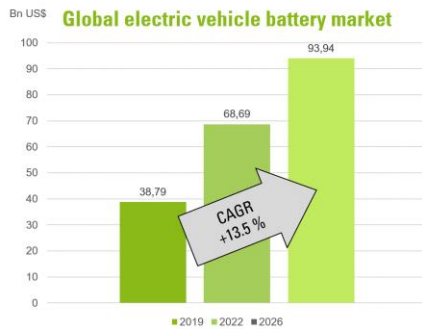


Figure 3: A growth rate of over 13 percent is predicted for the global market for battery casings for electric vehicles over the next 7 years. Sources: statista.com and marketsandmarkets.com.

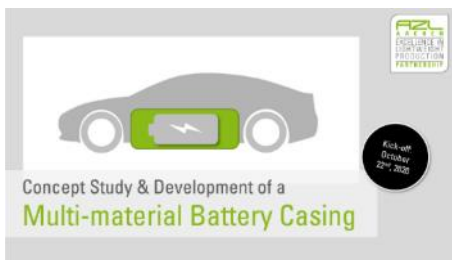


Figure 4: On October 22nd, 2020, an international industrial consortium consisting of automotive OEM Audi and suppliers along the value chain will launch a joint project with AZL to develop a multi-material battery casing. Copyright: AZL Aachen GmbH.



Figure 5: Dr.-Ing. Florian Meyer, Head of Development of Trim Parts for Audi AG is part of the cross-value chain consortium jointly developing a multi-material battery casing. Copyright: Audi AG.

About AZL

AZL Aachen GmbH specializes in composite-based lightweight production and offers cross-industry services for business development and technology development. The engineering and service portfolio includes the identification of business opportunities and market potential for lightweight construction technologies, the development of components, production processes and production systems including cost assessments and support for commercialization by identifying partners, suppliers and customers.

Based in the heart of one of the world's leading high-tech ecosystems, RWTH Aachen University, the AZL works closely with technology experts and ultra-modern infrastructure for the entire value chain of thermoplastic, thermoset and hybrid material systems.

With the AZL Partnership, the AZL offers a framework contract to connect decision-makers from academia and industry and to offer a platform for initiating sustainable partnerships in projects to exchange knowledge and efficiently drive innovation through shared effort.

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