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Kick-Off of the Gabriela Project – Resource-Efficient, Recyclable, Lightweight Battery Housing

On 30 August 2022, the Gabriela Project kicked off to a successful start at the first major consortium meeting of the project partners, held at project coordinator APK AG's Merseburg Germany headquarters. The project's name is derived from its German title: "Ganzheitliche Bearbeitung von Kunststoff-recyclingpfaden für ressourceneffiziente und kreislauffähige Leichtbau-Batteriegehäuse" (Holistic Processing of Plastic Recycling Paths for Resource-Efficient and Recyclable Lightweight Battery Housing). Important topics discussed at the meeting included material and process routes, initial findings from preliminary testing, and definition of the next steps to be taken.

The impetus behind the project is the EU's Green Deal, which is aimed at achieving climate neutrality by 2050. A critical contribution to the implementation of the EU's strategy is the recycling of plastics, including a push for the use of high levels of plastic recyclates in new products. Functionally integrated lightweight construction with a significant proportion of polymer-based materials is already playing a key role in CO₂ reductions in the mobility sector. Incorporating recyclates in lightweight structures can significantly expand these potential reductions even more by reducing the use of primary raw materials and the associated emissions.

There have, however, been major reservations about the recycling potential of composites, such as the fibre-reinforced thermoplastics used in structurally relevant lightweight components. In particular, existing mechanical recycling processes are not able to successfully separate the composites from each other. It is still uncertain whether the shredded material can be directly used as a recyclate or whether the material composite must be completely dissolved. As a manufacturer of shredding technology, Vecoplan contributes its many years of expertise with the aim of processing the material in such a way that it can be fed directly into the downstream processes. The Gabriela consortium project will study the recyclability of automotive supplier Kautex Textron's Pentatonic high-voltage

battery housings. Plastic recycle proportions of up to 100% will be evaluated. APK AG's new adaptive recycling technology Newcycling®, which enables the production of high-quality recyclates, will be one of the technologies used in the project. As part of the project, the entire life cycle of a fibre-reinforced plastic battery housing will be examined, from material production to initial fabrication, through ageing during use, to recycling, and finally to reuse in the same component. To optimally exploit the potential of the new recycling paths, industry partners representing all stages of the production process and three German universities are participating in the project. For APK AG, the focus is on the application of their Newcycling® solvent-based recycling technology to fibre-reinforced thermoplastics as well as the optimisation of the regranulate for reuse in battery housings. Collaboration with the research network "Platform FOREL" will enable the participating researchers to network across industries, facilitating the development of recycling options that are both scientifically and economically optimal.

The Gabriela research and development project is funded by the German Federal Ministry of Economics and Climate Protection (BMWK) as part of the Lightweight Construction Technology Transfer Programme (TTP LB) and supervised by the Jülich Project Management Organisation (PTJ). Responsibility for the content of this release lies with the author.

Project start: 1 July 2022

Duration: 3 years

Project partners:

Alliance partner: APK AG (consortium leader)

- [Kautex Textron GmbH & Co. KG](#)
- [Vecoplan AG](#)
- [iPoint-systems GmbH \(formerly Ifu Institut für Umweltinformatik Hamburg GmbH\)](#)
- [TU BA Freiberg / Institute of Mineral Processing Machines and Recycling Systems Technology \(IART\)](#)
- [TU Dresden / Institute of Lightweight Engineering and Polymer Technology \(ILK\)](#)
- [TU Braunschweig / Institute of Machine Tools and Production Technology \(IWF\)](#)

Meta-Title: Vecoplan involved in Gabriela recycling project.

Meta-Description: The project "Holistic processing of plastic recycling paths for resource-efficient and recyclable lightweight battery housings" (Gabriela) has been successfully launched. Vecoplan AG is also involved in this project.

Keywords: Vecoplan; Recycling; "Holistic processing of plastic recycling paths for resource-efficient and recyclable lightweight battery housings"; Gabriela;

Photo captions



Photo 1: The project "Holistic processing of plastic recycling paths for resource-efficient and recyclable lightweight battery housings" (Gabriela) has been successfully launched.



Photo 2: The Project partners

Photography credits: Vecoplan AG

Vecoplan AG is a leading manufacturer of machines and systems for the resources and recycling industry for shredding, conveying and reprocessing wood, biomass, plastics, paper and other recyclable materials such as domestic and industrial waste. Vecoplan® develops and manufactures the systems and components, and sells them worldwide in the wood reprocessing and waste processing industries. It currently has around 450 employees at its locations in Germany, the USA, Great Britain, Spain and Poland.

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