Lightweight construction, customized plastics and Industry 4.0: Fraunhofer PAZ expands

The Fraunhofer Pilot Plant Centre for Polymer Synthesis and Processing PAZ in Schkopau offers a unique portfolio for the plastics industry throughout Europe. The research facility will now be expanded with funds from the European Union, the state of Saxony-Anhalt and the Fraunhofer-Gesellschaft. For 10 million euros, around 1,000 square meters of additional usable space will be created and equipped with state-of-the-art machines. The Pilot Plant Center is thus ideally equipped for applications related to lightweight construction, digital component development and production processes in plastics processing, which are optimized for Industry 4.0.

Whether high-performance components for automotive lightweight construction, optimized processes for the plastics industry or the exploration of new, biobased materials: The Fraunhofer PAZ in Schkopau offers solutions to develop new polymer materials and corresponding components. Since 2005, the research facility, which is operated jointly by the Fraunhofer Institute for Microstructure of Materials and systems IMWS in Halle (Saale) and the Fraunhofer Institute for Applied Polymer Research IAP in Potsdam-Golm, has been supporting its customers with excellent materials competence. The special feature: In the Fraunhofer PAZ new polymer products and technologies are developed and optimized along the entire value chain – from monomer to polymer synthesis and plastic processing on a pilot scale to the tested component.

"We are very successful with the approach of joining our competencies and supporting companies with our unique technical possibilities, especially in the scale up to the production-oriented level. Through the expansion, we will also become an application centre for digital solutions in the plastics industry," says Prof. Peter Michel, head of polymer processing at Fraunhofer PAZ. “From the material composition, the design and the sensoring of components to the adaptation of the production processes in order to fully exploit the potential of Industry 4.0: Digitisation is rapidly changing the industry in all these areas. At Fraunhofer PAZ we provide the solutions to not only prepare companies for that, but make them benefit from these trends," says Michel.

In addition to extensive new infrastructure around the “digital twin” of materials, an internal mixer for the processing of various elastomer composites will also be part of the extended technical equipment in the field of polymer processing, as well as high-speed handling devices and machines for the production of components made of thermoplastic fiber composites. The extended Pilot Plant Centre will also offer even better opportunities for the use of biobased materials and for tyre applications. A special field at the Fraunhofer PAZ to be further developed is the production of UD tapes. This lightweight technology makes it possible to orient fibers of glass, carbon or other materials in fiber-reinforced plastics in such a way that they optimally correspond to the later load in the component. This creates highly resilient components with very low weight – ideal for replacing metal components in the car with lighter plastics. This reduces weight and thus emissions.

“These topics are ideally suited to the innovation strategy of the state of Saxony-Anhalt, as well as the focus on digitisation. That is why we are very happy to support the expansion of Fraunhofer PAZ”, says Dr. Jürgen Ude, Secretary
of State at the Ministry of Economics, Science and Digitisation of the state of Saxony-Anhalt, during today’s groundbreaking ceremony in the presence of guests from business, science and politics. “In the pilot Plant Center, solutions and competitive advantages are created directly for the companies in the region – and not only for the plastics industry, but across many industries. In this important role, also in the context of the Chemical and biosystems engineering center, which is also supported by the state of Saxony-Anhalt, we are strengthening the Pilot Plant Centre with the new possibilities”, says Ude.

By 2020, the construction work will be completed and the new equipment will be installed. “We are very pleased with the funding, as it enables us to meet the growing demand of our customers and, on the other hand, to better process strategic growth areas such as thermoplastic fiber composite construction and tailor-made elastomers composites. This puts us in an ideal position to take a leading position for the future needs of our clients”, says Prof. Peter Michel.

URL zur Pressemitteilung: https://www.imws.fraunhofer.de/de/presse/pressemitteilungen/Pilotanlagenzentrum-Erweiterung-Digitalisierung.html

Uwe Schumann, bhss Architekten, Hans-Joachim Hennings, Ministry of Economics, Science and Digitization of the State of Saxony-Anhalt, and Peter Michel, Fraunhofer IMWS at the groundbreaking ceremony.
Fraunhofer PAZ