Press Release

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Exceptionally high-performance material developed for industry

New super-plastic with positive eco-balance

- **Covestro and partners develop large-format production process**
- **Can be used in aviation, automotive and medicine**

Covestro and its partners have developed a high-performance thermoplastic (HPT) that could be used in many industries in the future. This would significantly increase the sustainability and performance of products in areas such as aviation, automotive and health. The challenge now is to enable the continuous production of the new plastic on a large scale. This is the goal of a research project coordinated by Covestro and funded by the German Federal Ministry of Education and Research (BMBF).

HPT is a high-performance plastic that can be processed by injection molding and uniquely combines numerous good properties. It is stable with high hardness and is also resistant to heat and many solvents. Test batches of the new material are already being produced.

In the current BMBF research project “DreamCompoundConti”, a continuous process will now be developed to enable environmentally compatible and economical production on an industrial scale. Covestro is working on this together with RWTH Aachen University, the Technical University Berlin, the Leipzig Plastics Center and the aircraft manufacturer Airbus as an associated partner. The Federal Ministry of Education and Research is funding the project with up to 1.5 million euros over the next three years – in the supporting program “Research for Sustainability (FONA³)” in the measure entitled “r+Impuls – Impulse für industrielle Ressourceneffizienz” (funding code 033R199).

“With this new joint project, we are underlining our efforts to produce particularly high-performance plastics in a climate-friendly and simultaneously economically efficient process,” says Dr. Markus Steilemann, CEO of Covestro.

Lean production process

A special feature of HPT production is that it is based on easily accessible basic chemicals. Since these are already being used for the production of foams, for example, they do not have to be produced specifically for this purpose. A novel catalyst system now enables the production of thermoplastic HPT from these basic chemicals for the first time. This saves CO_2 emissions and energy throughout the process because complex process steps are no longer required compared to the production of conventional high-performance thermoplastics.

Compared to the products already available on the market, there are quantifiable potential savings in resources: An initial Life Cycle Assessment (LCA) of RWTH Aachen University for the industrial manufacturing process has shown that HPT produces more than 20 percent fewer greenhouse gas emissions for production than similar thermoplastics. At the same time, the new continuous process, which the project partners want to develop and implement, requires fewer solvents. It therefore has a significantly better life cycle assessment than conventional processes.

The partners:

About RWTH Aachen University:
The Chair of Technical Thermodynamics (LTT) at RWTH Aachen University is involved in the project. For many years LTT has been involved in the development of system analytical methods and technical components for energy systems as well as theoretical and experimental research into fluid systems. Special focus is put on the ecological evaluation of new production processes for innovative plastics. In the project, the Chair undertakes an ecological assessment within the framework of a life cycle analysis.

About the Technical University of Berlin:
The project involves the Chair of Technical Chemistry / Multiphase Reaction Technology at the Technical University of Berlin. The Chair does research in the field of chemical reaction engineering, in particular reaction kinetics, reactors and process concepts as well as technology evaluation. One important focus is the work on membrane technologies and techno-economic analyses. The Chair contributes a comprehensive techno-economic analysis to the project and supports the identification and testing of new applications.

About the Leipzig Plastics Center:
The KuZ (German abbreviation) is an independent, industry-oriented research, technology, testing and advanced education center with 57 employees. As a plastics engineering branch institute with the fields of processing, tooling, joining and testing technology, the KuZ offers complex innovations and sees itself as a partner of companies for application- and market-oriented research and development, joint projects with industry, innovative industrial services, testing services in accredited laboratories, technology transfer, advanced specialist training as well as courses and examinations in the field of welding technology. The KuZ is involved in the joint project for economic analysis and material testing.

About Airbus:
Airbus is a global leader in aeronautics, space and related services. In 2017 it generated revenues of € 59 billion restated for IFRS 15 and employed a workforce of around 129,000. Airbus offers the most comprehensive range of passenger airliners from 100 to more than 600 seats. Airbus is also a European leader providing tanker, combat, transport and mission aircraft, as well as one of the world's leading space companies. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide.

About Covestro:
With 2017 sales of EUR 14.1 billion, Covestro is among the world's largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, construction, wood processing and furniture, and electrical and electronics industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself. Covestro has 30 production sites worldwide and employs approximately 16,200 people (calculated as full-time equivalents) at the end of 2017.

Find more information at **www.covestro.com**.
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