

Chemical Recycling for a sustainable future: RECENSO is BASF's partner in making new high-quality products on the basis of plastic waste

To create chemistry for a sustainable future, BASF group implements this guiding principle in its new corporate strategy. On November 20th the company presented this strategy to the public and kicked off "ChemCycling" to increase the content of recycling material in all BASF products. RECENSO will be a partner for the supply of appropriate waste based resources.

High-quality products made of recycled plastic waste – to turn this vision into reality at BASF in large scale, the chemical company will process a liquid raw material which RECENSO and its subsidiary CARBOLIQ extract from reprocessed domestic and industrial waste.

The process "from waste to resource" is realized by RECENSO in its pilot plant **DIESELWEST** located at the waste management center in Ennigerloh, Germany. BASF successfully tested five tons of RECENSO's liquid recycling product for further processing in October 2018. Based on this, it decided to scale up production of BASF products based on this liquid resource which has been registered as a new substance at the European Chemical Agency (ECHA) in accordance with the REACH regulation. This provided the basis for **commercialization of the resource apart from waste legislation**. In the context of "ChemCycling", up to 1000 tons of the conversion product are planned to be supplied to BASF in the year 2019.

The liquefaction process applied at DIESELWEST is **Catalytic Tribochemical Conversion (CTC)**. It is a single-stage process within a closed system applying friction energy and chemical catalysts. At moderate temperature (< 400 °C / 750 °F) and at atmospheric pressure the hydrocarbon chains crack, the shorter ones evaporate and are contained as condensate. Compared to other techniques, CTC has a **higher efficiency** and **lower cost of production**. This accounts for high potential. The modular design of the plants is perfect for local operation in the fields of energy transition and climate protection. The product is always an oil which can be used as raw material for new high-quality polymers and other products of chemical processing, and as well as high-quality storable fuel. The "ChemCycling" project will prove that a **"closed loop" for plastic materials is economically viable**.

RECENSO's engineers and technicians are **experts in systems engineering** and have been successfully working on design and implementation of systems for resource recovery. The portfolio covers machinery and systems for physical (mechanical) and also for chemical recycling. Proven and tested technologies and processes are combined with state-of-the-art systems engineering. Materials otherwise regarded as waste thus become resources.

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