

**New project *BioCOnversion*:****From emissions to a valuable feedstock for plastic precursors**

The new project *BioCOnversion* unites multidisciplinary expertise from academia and industry in a cross-border consortium to make CO-containing process gases available for the production of added-value chemicals. The German Federal Ministry of Education and Research (BMBF) funded € 1.5 million to develop an innovative bioprocess to convert syngas into a defined plastic precursor by evaluating different technology approaches. The three years project coordinated by the open innovation cluster CLIB<sup>2021</sup> has been kicked-off end of May 2018 and is element of CLIB's internationalisation strategy within the cross-border BIG-Cluster initiative of the regions of the German state of North Rhine-Westphalia, the Netherlands and the Belgian region of Flanders.

Carbon monoxide (CO)-containing process gases, abundant in the BIG-Cluster region through numerous industrial sites, can be valuable feedstock streams for the biotechnical production of building blocks that are currently produced via petrochemical process routes. Mid-chain carbon compounds with multifunctional groups are of special industrial interest. Since they are conventionally generated from fossil resources, routes using renewable non-food feedstocks to provide such precursors would be a major step to establish a sustainable economy. Therefore, *BioCOnversion* aims at developing and implementing a sustainable process from CO to a defined polymer precursor by evaluating different technologies. An international consortium of industrial and academic partners join their high-level, multidisciplinary expertise to develop a process comprising the primary conversion of CO/syngas into an intermediate through gas fermentation and its enzymatic upgrading conversion to a defined plastic precursor.

**€1.5 million for developing a sustainable process to convert syngas into a defined plastic precursor**

The *BioCOnversion* project has been launched on April 15 2018 and will run until April 2021. It receives funding of € 1.5 million from the Federal Ministry of Education and Research (BMBF) for developing the sustainable process (funding reference 03INT513B). For this, an international team will develop different technologies for the individual process steps as a start. Their performance will be evaluated to conceptionally design the overall process using the best-suited technology approaches. This *BioCOnversion* process will be experimentally validated and optimised in the second project phase.

The cross-border consortium combining academic expertise and industrial experience is built by Bio Base Europe Pilot Plant (Belgium), Covestro Deutschland AG (Germany), Fraunhofer Institutes for Molecular Biology and Applied Ecology (IME) and for Environmental, Safety, and Energy Technology (UMSICHT) (both Germany), Flemish Institute for Technological Research – VITO (Belgium), nova-Institut GmbH (Germany), Ruhr University Bochum (Germany), RWTH Aachen University (Germany), Technical University of Eindhoven (the Netherlands), Technical University of Graz (Austria), thyssenkrupp Steel Europe AG (Germany), VDEh-Betriebsforschungsinstitut GmbH (Germany), and Wageningen University and Research (the Netherlands). The consortium is coordinated by the open innovation cluster CLIB<sup>2021</sup>.

### ***BioConversion* stimulates the innovation environment of BIG-Cluster**

*BioConversion* is element of CLIB’s internationalisation strategy within the cross-border BIG-Cluster initiative (<https://www.bigc-initiative.eu/>). The project supports the BIG-Cluster efforts to transform the trinational region of the German state of North Rhine-Westphalia, the Netherlands and the Belgian region of Flanders into a world-leader of circular economy. “BIG-Cluster brings together highly experienced and specialised experts from all three regions to generate ideas how to develop and implement innovative technologies and novel value chains based on CO/syngas in Europe’s industrial region. The cross-border collaboration in *BioConversion* reflects this inspiring and unique innovation environment of the BIG-Cluster initiative.” stated project coordinator Cornelia Bähr from CLIB<sup>2021</sup>.

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### ***About BIG-Cluster Initiative***

The Bio Innovation Growth mega Cluster (BIG-Cluster) is a cross-border ‘Smart Specialisation Initiative’ aiming at transforming Europe’s industrial mega cluster in the Flanders region of Belgium, The Netherlands and the German state of North Rhine-Westphalia into the global leader of biobased innovation growth. The region has been a powerhouse of industrial innovation in the chemistry sector for decades. The overarching goal of BIG-Cluster is a comprehensive feedstock change with a focus on regionally available and sustainable raw materials, climate protection and the safeguarding of jobs in the mega region. BIG-Cluster has been established by the three cluster organisations BE-Basic (The Netherlands), CLIB<sup>2021</sup> (NRW, Germany), and Catalisti (Flanders, Belgium). <https://www.bigc-initiative.eu/>

### ***About CLIB<sup>2021</sup>***

CLIB<sup>2021</sup> is an international open-innovation cluster with about 100 of large companies, small- to medium-size enterprises (SMEs), academic institutes, and universities as well as other stakeholders active in biotechnology and related economy fields like the biobased and circular economy. Founded in 2007, the cluster is a non-profit association, with its members shaping the cluster’s interests and activities. CLIB aims to network its members along and across value chains within and beyond the cluster to initiate new research and business projects. <https://www.clib2021.de/en>