Turning CO2 into high-performing and biodegradable plastic materials with tunable properties

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Avantium Chemicals

Avantium is a frontrunner in electrochemical conversion. In the past years, Avantium has developed and proven novel solutions for CO_2 conversion to added value chemicals, such as formic acid, oxalic acid or glycolic acid. Additionally, Avantium has a long standing expertise in the development of new renewable polymers and new polymerization routes.

Avantium is now taking the step to reach the next level and develop a complete value chain from CO2 utilization to the production of high-performing, biodegradable CO2-based plastic materials for packaging, textiles and other applications. In recent years, we have developed a pathway for the conversion of CO2 to glycolic acid, which is then used for the production of poly(lactic-co-glycolic acid), PLGA, through a new polymerization route.

This polymer has excellent water and gas barrier properties, it is fully biodegradable and 100% made from renewable feedstock and with a minimum content of 75% coming from CO2, which makes it a promising candidate for the replacement of fossil polyethylene.