

Utilization of carbon for decarbonization (UC-DC) – New technology to convert CO₂ into biodegradable plastic

A new collaboration between industry and academia aims at converting captured CO₂ into biodegradable plastic. The project is part of the carbon capture and utilization agenda where attempts are made to capture CO₂ and use it for other purposes to mitigate global warming.

Plastic products from CO₂

Within a measurable future, various plastic products could be produced from CO₂. That is the potential outcome of the UC-DC project that is developing a new biotechnological process for utilization of captured CO₂. UC-DC is a collaboration between Danish Technological Institute, Pond, Again, and Technical University of Denmark, DTU.

Today, the world relies on fossil fuels to produce vital chemicals for plastic production. The UC-DC project wants to overcome this challenge by maturing a technology that uses CO₂-eating bacteria to produce acetic acid. The acetic acid is then converted to glycolide, a chemical building block for plastic production. Finally, this building block is polymerized into PGA, currently a petrochemical polymer, used in various plastic products, for instance in medical applications, such as sutures, tissue engineering scaffolds, and as a material for absorbable medical implants.