

PFI Research Project

BIO-EOL: Foundation Laid for a Fermentable Shoe?

PFI has successfully taken a first step on the way to a fermentable shoe: Funding for the transnational research project entitled “End-of-Life Possibilities of Biopolymer-based Consumer Products” was approved at the close of 2013. The two-year project began on 1 January 2014. Together with the Belgian textile research institute Centexbel, PFI is examining how bio-based biodegradable plastics can be recycled with the goal of attaining maximum added value.

The project is pursuing an entirely new strategy, viz. that of chemical/biotechnological recycling. Ideally, the polymeric material can be broken down into individual molecules (monomers) which can be repolymerised to yield a new plastic. In contrast to conventional recycling processes such as recycling by melting there is no deterioration of properties. And if the monomers cannot be recombined to form a polymer, they can be used to produce other industrial chemicals with the aid of bacteria. In this way a material reutilisation will at least be assured. If associated costs or technical problems should render implementation of traditional and chemical/biotechnological recycling processes difficult, there always remains the possible approach of anaerobic fermentation, as performed in biogas plants. This will at least transform the material into usable and storable energy.

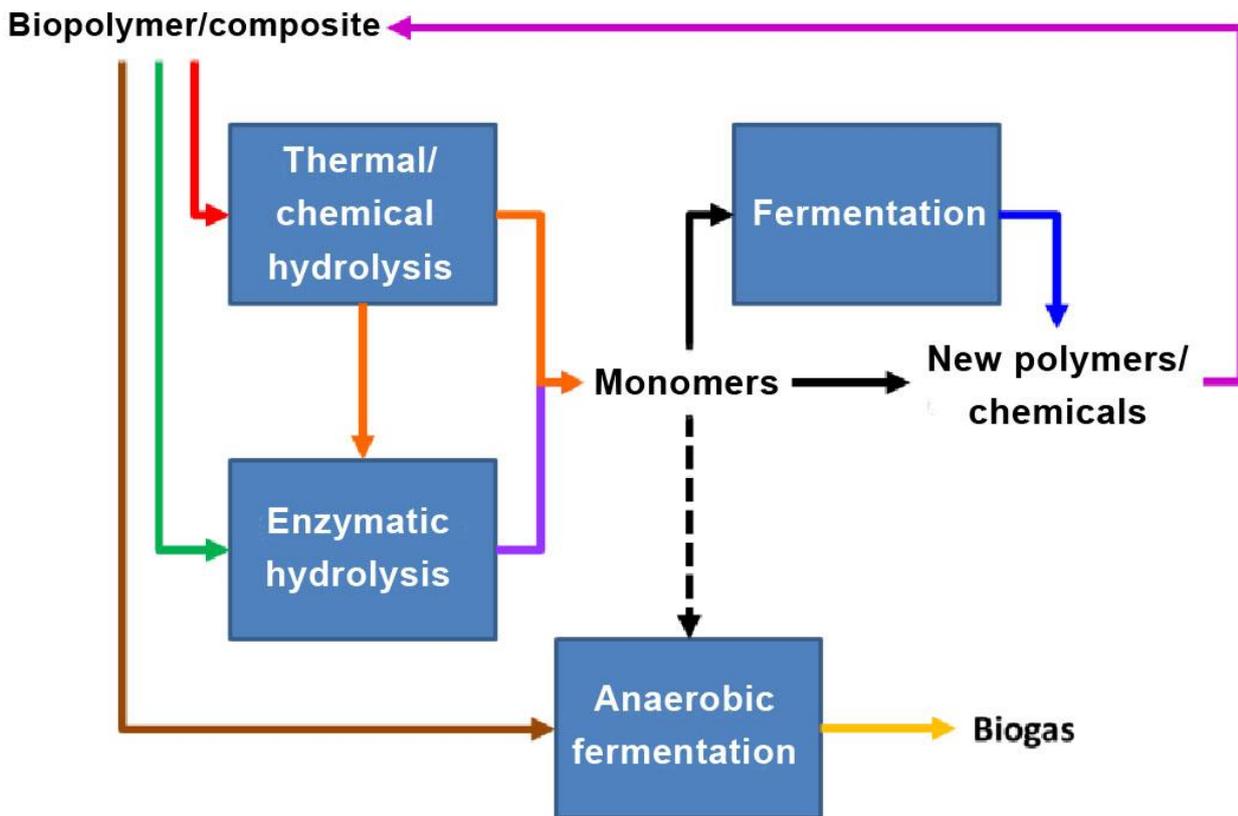


The project will focus particularly on polylactides, polyhydroxybutyrates, starch blends, and cellulose acetates. These plastics are produced partly or completely from renewable resources and are completely or partly biodegradable.

The results obtained in the project will also be subjected to a Life-Cycle Assessment. The findings should already be taken into account in the design phase of new products for which possible recycling methods are considered. Future projects can then address more complex consumer goods such as a fermentable shoe on this basis.

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PFI's chemical/biotechnological recycling strategy

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