

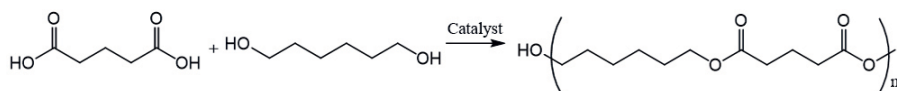
EXPLOITABLE FOREGROUND

Polyester synthesis in batch and reactive extrusion

Explanation and Purpose

Our main goal is to synthesize polyesters from glutaric and fumaric acids obtained from renewable sources. Different conditions have been studied in order to prepare high quality polyesters with special properties and added value. Among them, a wide variety of diols, catalysts, temperature ranges, reaction times and characterization methods have been applied. Special attention has been focused on lowering the energy and waste generated during the processes. To this aim, lipases have been applied to our syntheses as reusable catalysts.

Our next purpose has been the preparation of other commercially interesting products, such as water-borne polyurethane dispersions, which are in line with the philosophy of our company.



Exploitation Strategy

Our idea is to produce high added value polyurethane polymers from bio-based polyesters. Achieving sophisticated products with special properties will allow us to manufacture in-house and exploit the research made within BioREFINE-2G. Another approach is to establish license agreements with large companies interested in our products.

IPR Measures

The most promising polyurethane products and copolymers obtained from the starting polyesters will be protected through one or more patents. Then, Ecopol Tech and AIMPLAS will consider the possibility to publish the results in peer-reviewed journals.

Further Research

Further research is divided into two approaches: firstly, the methods involving organometallic catalysts will be studied so that the reaction temperature is lowered below 150 °C. This is important to ensure that the products can be synthesized at Ecopol Tech's facilities. Secondly, the use of lipases will also be optimized in order to make the process more environmentally friendly and reduce energy and resource waste.

Impact of Exploitation

The impact of exploitation can be very large given the applicability of polyurethane and PLA derivatives in various sectors of the market.

Development of 2nd Generation Biorefineries - Production of Dicarboxylic Acids and Bio-based Polymers Derived Thereof

**bioREFINE-2G**

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