

Abstract
Process Economics Program Report 265
BIO-BASED POLYMERS
(December 2008)

Bioplastics sometimes referred to as biopolymers are defined in this report as a class of compounds where at least a portion of the polymer consists of material produced from renewable sources. During the 1990s the chemical industry began exploring bio-based or renewable feedstocks for producing chemicals. Several trends are responsible for stimulating this interest in renewable feedstocks. Environmental concerns over the use of petrochemicals have grown due to global warming and the connection between petrochemicals as a source of carbon dioxide in the atmosphere. Also, the concept of sustainability and “carbon footprint” became prominent with politicians as well as in industry.

Poly lactide (PLA) and polytrimethylene terephthalate (PTT) are two leading bio-derived polyesters available commercially. Lactic acid been manufactured by fermentation for decades and serves as the feedstock for the biodegradable polymer PLA. PDO since 2006 has been produced by fermentation but is also produced from petroleum-based process and is copolymerized with petroleum-based terephthalic acid to produce PTT.

Specifically PEP examines the production of the biomonomer lactic acid (LAC) by fermentation for the production of polylactic acid (PLA) and the production of the biomonomer 1,3 propanediol (PDO) by fermentation and its reaction with terephthalic acid to produce the bioplastic polytrimethylene Terephthalate (PTT).

For those engaged in the production of biopolymers and their petroleum-based competition it is useful for its comparative economics and understanding of the importance of feedstock costs to the overall economics of biopolymers.

SRI Consulting

Report No. 265

BIO-BASED POLYMERS

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December 2008

A private report by the
PROCESS ECONOMICS PROGRAM

Menlo Park, California 94025



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