



1st
INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

IV SEMANA PAULISTA DE P+L
CONFERÊNCIA PAULISTA DE P+L

Evaluation of Aerobic Biodegradation from Polymers Poli(3-hidroxybutirate) and Synthetic Based on Additives by Action of Activated Sludge

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Abstract

The main purpose of this study is to evaluate the aerobic biodegradation of two different polymers by the action of activated sludge. This aim is reached bringing face to face a biopolymer, poly(3-hydroxybutirate), and a synthetic polymer based on additives. The present work has been conducted in two batches, employing an Activated Sludge System with extra aeration. The evaluation of biodegradation was based on polymers analysis - weight loss and scanning electron microscopy - and on microbial development - production of CO₂ and substrate analysis. Based on the results it was possible to conclude that the biopolymer was completely degraded. On the other hand, the results observed with synthetic polymer based on additives do not allow qualifying it as biodegradable in tested conditions.

Key words: biodegradable polymers, biodegradability, activated sludge.
