

REPROCESSING OF COMPOSITES BASED ON POLYPROPYLENE LOADED WITH OLIVE HUSK FLOUR

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The growing interest in the preservation of our environment stimulates solutions for developing less impacting materials. Thus, the development of composites from renewable resources and recyclable end-of-life resources seems an interesting alternative. This motivated the reason to focus our work on the use of agricultural by-products and waste recycling. Our purpose is the reprocessing of composites based on polypropylene (PP) reinforced with olive husk flour (OHF) at various load rates with adding PP-g-MA as a compatibilizer by six cycles of extrusion. The Young modulus of the composites has slightly increased with the rise of the OHF rate and the number of cycles. An FTIR analysis shows two types of degradation after reprocessing: thermal degradation characterized by a splitting of chains and thermal oxidation justified by the increase in the carbonyl index even when the intensity of the absorption peak has been noticed at $1690\text{--}1640\text{ cm}^{-1}$ referring to the vinyl groups after the 6th cycle. Moreover, the TGA analysis showed a better thermal stability of the composites after the 6th cycle compared to the virgin PP. The rate of crystallization increases with the number of extrusion cycle.

KEY WORDS: composites, polymers, natural fibers, recycling, interface

1. INTRODUCTION

In recent years, agricultural wastes have become an increasing concern, as they may cause significant environmental problems. Nevertheless, they may also be used for