Preparation and Characterization of Recycled Polyethylene Terephthalate/Polypropylene Blends from Automotive Textile Waste for Use in the Furniture Edge Banding Sector

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Abstract : In this study, we investigated the recovery of Polyethylene terephthalate/Polypropylene (PET/PP)-containing automotive textile waste from post-product and post-consumer phases in the automotive sector according to the upcycling technique and the methods of formulation and production that would allow these wastes to be substituted as PP/PET alloys instead of original PP raw materials used in plastic edge band production. The laminated structure of the stated wastes makes it impossible to separate the incompatible PP and PET phases in content and thus produce a quality raw material or product as a result of recycling. Within the scope of a two-stage production process, a comprehensive process was examined using block copolymers and maleic grafted copolymers with different features to ensure that these two incompatible phases are compatible. The mechanical, thermal, and morphological properties of the plastic raw materials, which will be referred to as PP/PET blends obtained as a result of the process, were examined in detail and discussed their substitutability instead of the original raw materials.