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A wood-filled composite based on recycled polyethylene terephthalate. Production and properties

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Abstract

The possibility of conducting combined recycling of wood and PETP waste was investigated. The aim was to develop a process for producing composites based on recycled PETP filled with wood flour by the depolymerisation of recycled polymer to polyol, the production of unsaturated polyester, and its subsequent polymerisation with filler into products. The mechanisms of the principal processes occurring in the production of the composite were examined. It was shown that the wood-filled composite produced could be processed by pressing to produce products such as boards, panels, trays and sheets. The properties of the composite (density, elastic modulus, elongation at break and impact strength) were compared with those of a traditional wood-plastic composite.