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Biodegradation and its Effect on Mechanical Properties of the Recycled Blend Compatibilized with Epoxidised Soybean Oil

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ABSTRACT

Present study analyses the biodegradation and its effect on mechanical properties of the recycled blend of poly(vinyl chloride) and poly(methyl methacrylate) modified with soybean oil and epoxidised soybean oil. The degradation studies were accompanied in a stimulated soil column for a time period of 8 month. The mechanical properties, weight reduction and leaching studies were conducted on the specimens on each interval of the time. The properties such as impact strength, tensile strength and elongation-at-break values were declined with the progress in the time period. Along with it, the specimens were shown enhanced tensile modulus and surface hardness values up to the period of 6 month. Further this study coincide that the oil particles initiated the degradation mechanism of the polymeric constituents present in the blend. Even if, the epoxidised soybean oil formulated blends were shown stability towards the weight loss due to existence of physical and chemical interactions with the polymeric constituents present in the recycled blend.

Keywords: Recycled blend; Impact strength; Epoxidised soybean oil; Biodegradation