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Recycle and reuse of plastic pollutants as an effective reinforcer in ionomer matrix for polymer packaging

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This paper deals with dual plastic waste recycling and its reuse as a reinforcer. The major plastic pollutants that are considered to be in maximum use i.e. PET bottle and PE bags have been taken for consideration for recycling. Effect of dose of poly (ethylene-co-methacrylic acid) copolymer as a compatibilizer to process these two plastic wastes is analyzed and has been observed to be an efficient system with 500% of tensile property improvement. Based on these observations, the usage of recyclates from dual plastic waste is explored as a reinforcer in polymer cosmetic packaging. Compatibility of plastic wastes and its effective reuse as a reinforcer in ionomer matrix of packaging has been examined through mechanical testing, thermal. Morphological analysis by FESEM and AFM has also confirmed the compatibility of the blend. Experimental data showed better performance than available recycling process and commercial reuse.

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