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EVALUATION OF NETWORKS BETWEEN PRODUCTION UNITS IN THE POST-CONSUMER PET PACKAGING RECYCLING CHAIN

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Abstract

This study aimed to evaluate recycling networks for poly(ethylene terephthalate) (PET) packaging and propose a network structure for sharing recycling routes between different production units, using the Rio de Janeiro metropolitan region as a case study. A descriptive design was used and field research conducted to gather data on the recycling process. Participants were production units, classified as distributors, distribution recyclers, intermediate recyclers, and molding recyclers. A georeferencing program established the location of these units, origin of the PET waste, its distribution, and the structure of integration networks between recycling units considering the supplier-customer relationship, in order to assess the reverse logistics of post-consumer PET. The data obtained were analyzed qualitatively and quantitatively to elucidate the current recycling scenario and propose a new network structure. The proposed framework would reduce the distances traveled by almost 50%, while maintaining the same business relationships between the production units identified. The most prominent features of the current recycling structure are that PET distributors are located near their suppliers, whereas intermediate-recyclers are close to molding-recyclers, their customers.

Key words: network, poly(ethylene terephthalate), post-consumer PET, recycling, recycling chain

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