Identification of Cleaner Production opportunities in a plastic recycling cooperative

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Abstract

Recycling is considered an important strategy to meet the challenge of waste generation and to develop more sustainable practices. The recycling chain in Brazil is considered complex because it involves multiple actors, among them, it is possible to highlight the performance of the scavengers as fundamental agents in the viabilization of recycling. However, the scavengers are not always recognized, they are the ones that benefit least in the chain and they face several difficulties. In the quest to overcome difficulties and obtain a better position in the chain, the collectors have organized themselves in cooperatives, networks and recycling centers of materials. From the environmental point of view, recycling processes, especially of post-consumer plastics, can also have an impact on the environment, if management is not established from the collection until the final disposal of the same. Thus, it is important to adopt environmental management tools such as Cleaner Production (CP), for example, that result in benefits to the environment, society and organizations. The objective of this study was to identify opportunities for improvement in the plastic recycling process in a cooperative in Sorocaba - SP, through the use of the CP tool. A literature review and technical visits were carried out in a cooperative that performs the recycling process of Polyethylene (PE) and Polypropylene (PP), transforming them into flakes and / or pellets. It was sought to obtain general characterization information and the environmental aspects of the recycling process, in order to suggest improvements to the process and to identify the main barriers of CP in the cooperative. The study revealed that the recycling process of the cooperative is passive to generate several environmental impacts, mainly due to the absence of standardization of the raw material and the high consumption of water in the washing stage and consequent generation of effluents, which in turn is not treated. 25 improvement opportunities were identified, focusing mainly on level 1 of housekeeping. There were several CP barriers in the cooperative, especially those related to financial issues and lack of government support. Thus, it is necessary to overcome these barriers to an effective implementation of the CP and obtain the consequent economic, environmental and social benefits.

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