

# RECYCLING OF MULTILAYER PACKAGING FOILS: USING DIFERENT ORGANIC SOLVENT

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## Abstract

Multilayer Packaging waste are one of the major problem in the world. About 6 billion tons of Packages are generated per year in the world (In EU is about 82 million tons per year). Multilayer packaging foils are approximately 17% of all produced packaging films. Most produced multilayer film is based on the different polymers, such as: polyester (PET), polypropylene (PP), and polyethylene (PE) as main components, and an aluminum layer. However, because of their poor recyclability, most multi layers are usually incinerated or landfill, this is counteracting the efforts towards a circular economy. There are different recycling methods for this type of waste, but the main problem is that there is less company which recycling multilayer packaging foils and also it is very important that, mostly they recovering only one or two components and others are burned or landfilled. The aim of this study was to find most suitable organic solvents for recovering two common components: polymer and Al. For the first experiment, there was chosen multilayer packaging foil's different samples, such as: packaging for chocolate, for chips, for medicines, for coffee. There was used several chemicals: acetic acid, acetone, dimethyl formamide, ethanol, ethyl acetate and toluene. These solvents are on the list of green chemicals and they were selected, due to their less impact on the environment and on the human health. The recycling process and result was different for each samples and solvents, because of their individual characteristics.

**Keywords:** Multilayer Packaging Waste (MPW), Recycling, Organic Solvents, Circular Economy