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Multimaterial laminated film recycling – PE-Al, PE-PA and PE-PET full material recovery without downcycling

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Multimaterial waste is a difficult material to recycle. In terms of laminated film processing, this issue is even more apparent, as mechanical separation of the base materials is not possible. There are very few technologies able to process the most common laminates used in food packaging such as PE-PET, PE-PA and PE-Al. Many of such process are either based on energy recovery or offer products of low quality (downcycling). Multi-material laminates when recovered from communal waste are mixed with other polymers and contaminants. On the other hand, output of postproduction waste with manageable levels of contamination is growing every year. New advanced technologies enabling a full material recycling of waste laminates are in their early stages of implementation. Processes based on chemical delamination or polyethylene dissolution/extraction enable to obtain products with virgin like properties, but will high quality of recycled products justify intense energy consumption and investment cost?

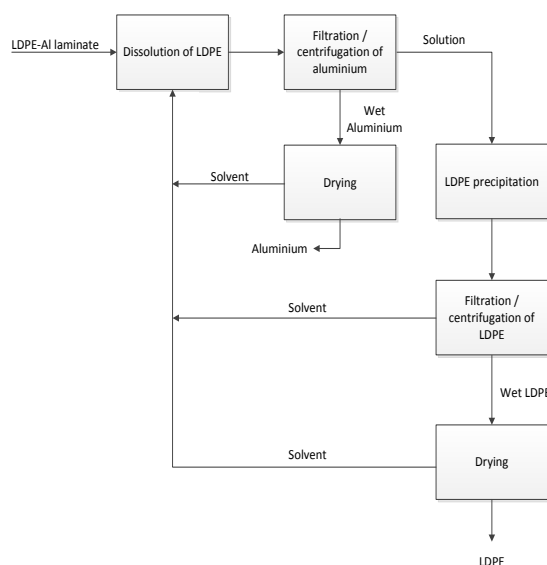


Figure 1: Recycling of PE-Al laminate by solvent extraction process

Biography

Szymon Wojciechowski has his expertise in multi-material laminates recycling using solvent extraction as the main method. His work is focused on overcoming major obstacles that now prevent wider commercialization of multi-material waste recycling without material quality degradation.

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