Researchers develop method for recycling plastic with printed ink

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Method for recycling plastic with printed ink.

Researchers at the University of Alicante have developed a procedure that removes printed ink on plastic films used in flexible packaging getting a product free from ink and suitable for recycling.

This new technology developed and patented by the UA Waste, Pyrolysis and Combustion Research Group, allows the removal of printed ink through a physical-chemical treatment and retrieves the plastic film clean, increasing the added value of the recycled product, plus pigments obtained can be used in other applications.

Currently, in most production processes in which there is printed ink on plastic films, the material is rejected for not complying with the final specifications required or simply because they come from the initial settings for the commissioning of the machinery. Many of these residues

are not recoverable printed plastic due to its high content in ink and therefore it can not even be used to produce recycled plastic. The high content of ink significantly decreases the viscosity of the plastic and this is a problem at the time of reusing it through an extrusion process of the material.

"The most important advantages of removing ink are, on the one hand, increasing the value of engineered plastic, achieving to match the quality of the new plastic with a virgin one, and on the other hand, the selling price of recycled plastic compared to virgin plastic", Andrés Fullana Font explains, a lecturer of the UA Department of chemical engineering and a member of the research group.

Another important aspect of the technique is that during the process no organic solvents are used to perform the ink removal and the cleaning solution employed in the process is reused, which makes it more favorable economically and environmentally.

"Therefore, we obtain a higher-quality recycled material than can be applied to a printed product already used by the end user, or in print materials made up from production losses" Andrés Fullana adds.

There is currently no industrial method of disposal of printed ink for these wastes and. At the very best, they are recycled without any treatment for applications with very low added value.

The technology has been successfully tested in a pilot plant on different printed forms of polyethylene, polypropylene, polyester and polyamide, and has been proved effective for both solvent-based inks and water-based inks. Also, it can be used in various sectors such as plastic recycling, graphic printing and packaging.