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MAGNETIC FLUID EQUIPMENT FOR SORTING SECONDARY POLYOLEFINS FROM WASTE

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Abstract

The paper presents the research made on the FP7 project „Magnetic Sorting and Ultrasound Sensor Technologies for Production of High Purity Secondary Polyolefins from Waste" in order to develop a magnetic fluid equipment for sorting of polypropylene (PP) and polyethylene (PE) from polymers mixed waste streams. Because both PP and PE float in water, it is difficult to separate one from the other. The paper presents the principles of inverse magnetic density separation process and the results obtained in developing of lab scale equipment for high grade separation of polyolefins from different types of polymers mixtures in a single step. Furthermore, the evolution of the equipment design is described, based on the simulation of polyolefins dynamic flow inside magnetic fluid in the magnetic field. The research made on lab scale equipment show fruitful results that encourage the researches for the next step. The consortium of projects is still working on scaling up this equipment for industrial application, which will be installed in Romania in 2013.

Key words: magnetic density separation, polyolefin, recycling, solid waste

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