W2 PLASTICS: Magnetic Sorting and Ultrasound Sensor Technologies for Production of high Purit Secondary Polyolefins from Waste

Description

The European consumption of plastics increased from 24,6 Mtons in 1993 to 39,7 Mtons in 2003 and its growth rate exceeds that of the economy as a whole. At the same time, polymer recyclers and manufacturing industries have a problem buying feed materials and secondary polymers of sufficient volume and quality, as a result of the pull of China and India on all raw material resources. The alternative of using more primary plastics has a range of environmental impacts and needs more resources(about two kg oil for one kg plastic).

The polymer resources in complex wastes, such as WEEE, household waste and ASR (ACEA: 7.5 million tons of shredder residue in the EU17 in 2002), are largely unused, because of the problem to produce high-purity products from such sources at acceptable costs. Today just one million out of 14 million ton polyolefin's yearly sold in Europe is being recycled. W2Plastics aims to develop cost-effective and clean technology based on Magnetic Density Separation (MDS) and Ultrasound process control to recover high-purity polyolefin's from complex wastes.

A substantial effort is spent on making the new technologies fit in between the state-of-the-art technology of waste processors and the demands of the compounding and manufacturing industries by defining standards and best practices as well as effective quality-control tools (hyperspectral imaging). The integrated set of technologies and standards aims at changing the status of complex wastes to a resource of high purity polyolefin's for a wide range of industries.

The development of such technology was in line with the European legislation (COM/2001/0031, 99/31/EC, 2000/53/EC, 2002/96/EC, 2003/108/EC) aiming at fostering the development environmental friendly technologies to reduce the environmental impact of human activities, to protect the environment, to minimize depletion of resources and to promote at the same time) business opportunities and improved competitiveness of European industry and SMEs.

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