

## **Recycling of polyolefins waste materials by dissolution/reprecipitation technique using an organic solvent**

*Arkan Jasim Hadi<sup>1,2,\*</sup>, Ghazi Faisal Najmuldeen<sup>1</sup>, Kamal bin Yosuf<sup>1</sup>*

<sup>1</sup>Universiti Malaysia Pahang, Faculty of Chemical and Natural Resources Engineering, Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang, Malaysia

<sup>2</sup>University of Tikrit, College of Engineering, Department of Chemical Engineering, Tikrit, Salahaldden, Iraq

### **ABSTRACT**

Recycling of waste polymer based on low-density polyethylene (LDPE), high-density polyethylene (HDPE) or polypropylene (PP) is studied using the dissolution/reprecipitation method. In this technique, Mesitylene and petroleum ether (PetE) were used as solvents with different fractions. PetE and n-hexane were used as non-solvents. Commercial polyolefins products as a raw material were used and optimized with model polymers. Polymer recoveries in every case were greater than 95%. FT-IR spectra and mechanical properties of the samples before and after recycling were measured. Thermal properties (melting point, crystallinity) of the polymer were further investigated, before and after recycling, using DSC. High reconditioning was observed in most recycled samples with not significantly different from the virgin materials.

### **KEYWORDS:**

Recycling; Mesitylene; Waste polymer; Dissolution/reprecipitation

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