

Xylene soluble fraction of HiPP.

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The determination of the xylene soluble fraction in HiPP (High impact Polypropylene) is used to measure the amorphous content in copolymer. In analytical laboratory soluble fraction is measured by Kumagawa extraction using a gravimetric method according to ASTM D5492. These methods require large quantity of polymer, large amount of solvent and long extraction times. It is therefore desirable to develop other laboratory methodologies for this task; preferably methodologies that employ existing laboratory equipment.

In this paper we have investigated the composition of 4 industrial HiPP. For each sample the different fraction were separated by Kumagawa extraction. Then each fraction was analyzed by high temperature SEC, DSC, FTIR and NMR.

A faster method using SEC for the determination the soluble fraction is also described. The use of a concentration detector (refractive index detector) allows us to determine accurately the quantity of soluble material. This procedure provides simultaneous measurement of soluble part and molecular weight distribution of the soluble fraction.

In this work we have compared our experimental procedure versus traditional method using 4 industrial HiPP. The SEC method was found to be significantly faster than the standard approach, require less solvent and less raw material.

This poster demonstrates that very similar results are obtained using both methods, and in addition, only 2 hours are required with the SEC-based approach to get both soluble fraction AND the MWD of the soluble fraction, whereas around 8 hours are needed with the standard method.

