

One shot fractionation and quantitation of impact polypropylene formulation.

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Impact polypropylene formulations are complex and most of their properties are related to the impact modifier architecture and content. Moreover long term stability is crucial for demanding applications. For these reasons, we have focused some of our recent research activities in the field of characterization and quantitation of impact PP formulations. We found a one shot way to identify/quantify the content of the three main fractions : PP, impact modifier and additives.

Our analytical process is based on a high temperature sandwich injection followed by several LC separations mainly with HT ESLD detection. First step is dedicated to additives with antioxidants, oligomeric HALS and lubricants separation then impact modifier and PP fractions.

An additional semi preparative approach was focused on impact modifier fraction with off-line SEC, NMR, FTIR and Raman to allow the characterization of the most of the polyolefin structure.

Quantitative correlation with traditional approach fits well : additives extraction, impact modifier fraction and PP residue.