

MOLECULAR CHARACTERIZATION OF COMPLEX POLYOLEFINS BY SEC- FTIR

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ABSTRACT

Advanced progress in catalyst tailoring and optimization of the polymerization processes have resulted in rapid growth in the production and use of polyolefins in recent years¹. Polyolefins exhibit multiple distributions (due to heterogeneity) in various molecular characteristics such as molar mass, chain architecture, chemical composition, functionality, etc. Complete characterization of these structurally complex polyolefins is a growing challenge in analytical chemistry, both as an important step in confirming the molecular structure of the materials and also as a tool to give insight into the mechanism of the polymerization reaction². A rapid and automated analytical tool is necessary for the characterization of such complex structures. The coupling of size exclusion chromatography (SEC) with offline FTIR provides a relatively fast and simple method for the analysis of complex polyolefins³. Here we report the use of SEC-FTIR as an accurate and versatile analytical technique for the characterization of polyolefins with complex heterogeneity, especially in terms of chemical composition distribution (CCD) along the molar mass distribution (MMD).

References:

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