STUDIES ON COMPOSITIONAL HETEROGENEITY IN ETHYLENE-PROPYLENE COPOLYMERS USING FRACTIONATION METHODS

Mohau Phiri*, Sadiqali Cheruthazhekatt#, Harald Pasch#

#Department of Chemistry and Polymer Science, University of Stellenbosch, 7602 Matieland, South Africa
*Email address: phiri@sun.ac.za

ABSTRACT

Compositional analysis of the completely amorphous materials such as Ethylene-Propylene Random Copolymers or EP Rubbers are difficult by using conventional crystallization based polyolein fractionation methods such as TREF, CEF and CRYSTAF.1-3 In the present work recently developed High Temperature-Solvent Gradient Interaction Chromatography (HT-SGIC) was used for the separation of the EP Rubbers according to their ethylene propylene content distributions along the macromolecules. Chromatographic separations showed the existence of long ethylene sequence in the EP chains, further confirmed by thermal analysis, DSC. These results prompted us to conduct a preparative fractionation on EP rubbers having varying ethylene contents. A detailed analysis of the separated fractions obtained by prep TREF approach was conducted by CRYSTAF, HT-SGIC and FTIR measurements.

References