

SL 8.12

## **The Effect of Short Chain Branching on the Rheological and Thermal Properties of Olefin- $\alpha$ -olefin Copolymers**

*L. Halász, O. Vorster and K. Belina*

*Tshwane University of Technology, Pretoria 0001 POBox 395, South Africa*

An important method of the modification of the properties of polyethylene and polypropylene is the copolymerization with  $\alpha$ -olefins. The  $\alpha$ -olefin behaves as a short branch in the structure, and the rheological and thermal properties of copolymers change significantly. A new method is suggested to evaluate the rheological and thermal properties of copolymers on the basis of homopolymer properties, by introducing a short branch degree parameter. The zero shear viscosity, plateau modulus, fractional free volume, reptation tube diameter, glass transition temperature and thermodynamical melting point were calculated.