



Polyolefin Elastomers with Isotactic Propylene Crystallinity

Abstract

In this study we examine the structure-property relationship in Vistamaxx™ specialty elastomers which are polyolefin elastomers of propylene and ethylene having isotactic polypropylene crystallinity. The range of composition is quite narrow: above and below that range the elastic properties are lost. These polymers combine uniquely the attributes of elongation, elastic recovery and ease of processing. The properties of this polymer are a strong function of the composition of the polymer i.e. ethylene content and the errors in the insertion of propylene. At a macromolecular level these polymers have a phase separated structure containing crystalline and amorphous regions; however the crystal structure changes with composition of the polymer. The objectives for this study are 1) Develop understanding of solid-state structure and morphology of these polymers and 2) relate structure and morphology of these polymers to physical properties.

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