

POLYPROPYLENE NUCLEATION AT HIGH TEMPERATURE

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Abstract

Nucleating agents are widely used to enhance the physical properties of polypropylene (PP) resin and in particular, increase in the stiffness, strength and heat resistance of molded parts. Polypropylene homopolymer (PPHP) resin is used for the effect of nucleation by two different nucleating agents at room temperature and high temperature respectively. Nucleation with specialty nucleating agents is found to have profound effect in improving stiffness related properties of homopolymer (PPHP) at room temperature and same is also performed to observe the effect of high temperature. The difference in nucleation efficiency at different temperatures is discussed and analyzed with the help of nucleation mechanism of crystallization. The paper presents an overview of two different kinds of nucleating agents and compares the influences of these agents on the mechanical properties of PPHP at different temperatures. The nucleating agents used in this study are carboxylate salts and phosphate ester salts.

Keywords: Polypropylene homopolymer, Nucleating agents, crystallization, Nucleation effect, Spherulites.

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