

Abstract Submitted
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Shear-Induced Crystallization and Rheology Behavior of Isotactic Polypropylene and Poly (ethylene-co-octene) Blend XIA DONG, KUN MENG, CHARLES C. HAN, PPCL, Joint Lab. of Polymer Science and Materials, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, China, YONGYAN PANG, DUJIN WANG, KLEP, Joint Lab. of Polymer Science and Materials, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, China — Shear-induced crystallization of isotactic polypropylene (iPP) and poly (ethylene-co-octene) (PEOc) blend was studied by means of in-situ optical microscopy with a shear hot stage. Shear promoted the orientation of the polymer chains in shear direction, which results in cylindrite crystals. The cylindrites were observed when the shear rate is necessarily higher than 10s^{-1} after liquid-liquid phase separation (LLPS) at 170° for 420min. The cylindrites appear and grow across the phase regions and have some defects after decomposition. The cylindrites growth rates remain unchanged with shear at any given temperature, while the nucleation density increases dramatically after LLPS when shear rate is more than 10s^{-1} . The Blends viscosity and modulus depending on shear frequency was increased with the PEOc contents.

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