

Abstract Submitted
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Crystalline Morphology of Propylene 1-Octene Random Copolymers¹ KEESU JEON, RUFINA G. ALAMO, Department of Chemical and Biomedical Engineering, FAMU-FSU College of Engineering — The morphology of isotactic propylene 1-octene random copolymers has been studied by AFM, DSC, WAXS, and FTIR in an octene range of 10-20 mol %. Different morphologies were observed below and above 15 mol %. The morphological components in the higher content copolymers are not of the lamellae-type, thicker than lamellae observed below 15 mol %, connected and isotropic in their orientation. Their global morphology is developed via nucleation and growth (NG) of spherulitic aggregates. The evolution of heat of fusion with time is also sigmoidal shape, typical of NG-type crystallization mechanism. WAXS diffractograms for the higher content copolymers are devoid of crystalline reflections, except for small and broad peaks suggesting mesomorphic-like structures, which by FTIR show small contents of the 840 cm⁻¹, 12 and higher units regularity bands, and hence formed of short helical sequences. The PO morphology is additionally compared with copolymers with ethylene, 1-butene and 1-hexene contents at matched contents.

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