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**Effect of PE on the structural evolution of iPP : analysis of a series of iPP-PE copolymers** KISHORE TENNETI, LINGYU LI, Department of Materials Science & Engineering, Drexel University, Philadelphia, PA 19104, CHUNG TSO, Chevron Phillips Chemical Company LP, Bartlesville, OK 74004, CHRISTOPHER LI, Department of Materials Science & Engineering, Drexel University, Philadelphia, PA 19104 — The three different morphological forms of isotactic polypropylene (iPP), namely alpha, beta, and gamma, are well established. Alpha is the most common crystal phase while beta is metastable. The gamma form of iPP often exists as the minor component, intermixed with the alpha phase, during crystallization of copolymers at atmospheric pressures. A series of iPP-Polyethylene (PE) copolymers with varying percentages of PE have been investigated. Thermal and x-ray analysis reveal that as the PE content increases from 0 to 5 percent, gamma became the dominant phase. Single crystal morphology of the iPP-PE copolymers have been studied using TEM, SEM and AFM. The signature of alpha phase, the cross-hatch morphology, was observed in all the samples. Gamma single crystals were clearly observed like a ribbon shape and the center of the ribbon consisted of alpha lath. Fractal-like growth was also observed, presumably due to the thermal degradation of the polymer.

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