Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Melting and Crystalline Properties of Isotactic Poly(propylenes) with 1,3 Defects CAROLINA RUIZ-ORTA, JUAN P. FERNANDEZ-BLAZQUEZ, RUFINA G. ALAMO, FAMU-FSU College of Engineering, Tallahassee, FL 32310, AMELIA M. ANDERSON, GEOFFREY W. COATES, Cornell University, Chemistry, Ithaca, NY 14853 — Polypropylenes synthesized with a chiral diimine Ni(II) catalyst and MAO produce isotactic poly(propylenes) with random 1,3 enchainments and offer the opportunity to study the effect of this defect on iPP crystallization in reference to the effect given by 1-alkene comonomers. The type and content of 1,3 insertions was obtained from high resolution 13 C NMR spectra. Both, the 1,3 insertion and the ethylene comonomer add similar methylene sequences to the isotactic iPP chain; however, iPP with isolated 1,3 defects melt and crystallize at lower temperatures than matched propylene ethylene copolymers. The melting behavior is similar to propylene 1-octene copolymers, reflecting the exclusion of the 1,3 defect from the crystals. Compared to copolymers with 1-octene or 1-hexene units, the methylene enchainment and change in chirality caused by the 1,3 defect leads to a lower degree of crystallinity and different polymorphic behavior.

Rufina G. Alamo
FAMU-FSU College of Engineering, Tallahassee, FL 32310

Date submitted: 19 Nov 2009 Electronic form version 1.4