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(54) Title: PRODUCING POLYOLEFIN PRODUCTS

(57) **Abstract:** Catalyst systems and methods for making and using the same. A method of methylating a catalyst composition while substantially normalizing the enantiomeric distribution is provided. The method includes slurrying the organometallic compound in dimethoxyethane (DME), and adding a solution of RMgBr in DME, wherein R is a methyl group or a benzyl group, and wherein the RMgBr is greater than about 2.3 equivalents relative to the organometallic compound. After the addition of the RMgBr, the slurry is mixed for at least about four hours. An alkylated organometallic is isolated, wherein the methylated species has a meso / rac ratio that is between about 0.9 and about 1.2.

