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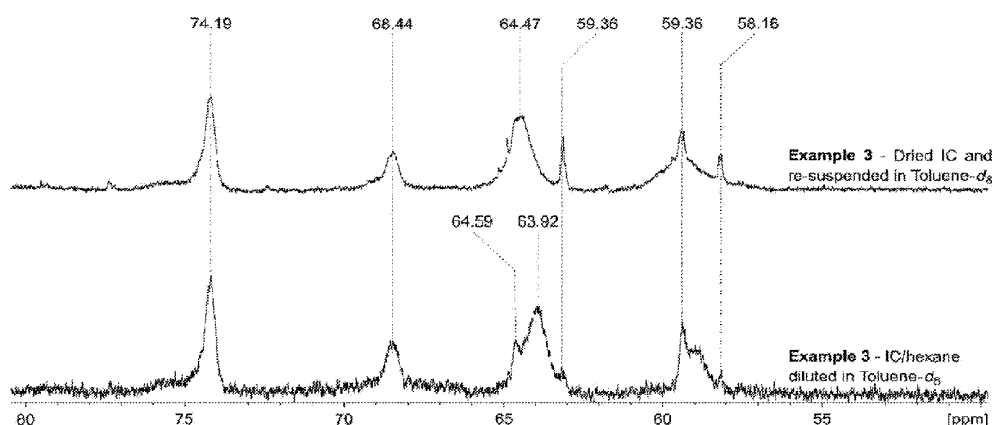
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(54) Title: METHODS OF CONTROLLING ZIEGLER-NATTA PRE-CATALYST PARTICLES FORMATION AND USE FOR
OLEFIN POLYMERIZATION

FIG. 1



(57) Abstract: A colloidal suspension includes an organic phase and a complex of Formula I as precursor for Ziegler-Natta catalyst synthesis: $\text{XTiCl}_p(\text{OR}^1)_4-p \cdot \text{YMg}(\text{OR}^2)_q(\text{OR}^3)_t$ (I). In Formula I, a molar ratio of X to Y (X/Y) is from 0.2 to 5.0, p is 0 or 1, $0 < q < 2$, $0 < t < 2$, the sum of q and t is 2, R^1 , R^2 , and R^3 are each independently a linear or branched alkyl, a linear or branched heteroalkyl, a cycloalkyl, a substituted cycloalkyl, a substituted heterocycloalkyl, a substituted aryl, or a (heteroaryl)alkyl; and R^2 is not the same as R^3 .

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