

Accepted Manuscript

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PII: S0032-3861(18)30167-8

DOI: [10.1016/j.polymer.2018.02.042](https://doi.org/10.1016/j.polymer.2018.02.042)

Reference: JPOL 20390

To appear in: *Polymer*

Received Date: 3 November 2017

Revised Date: 16 January 2018

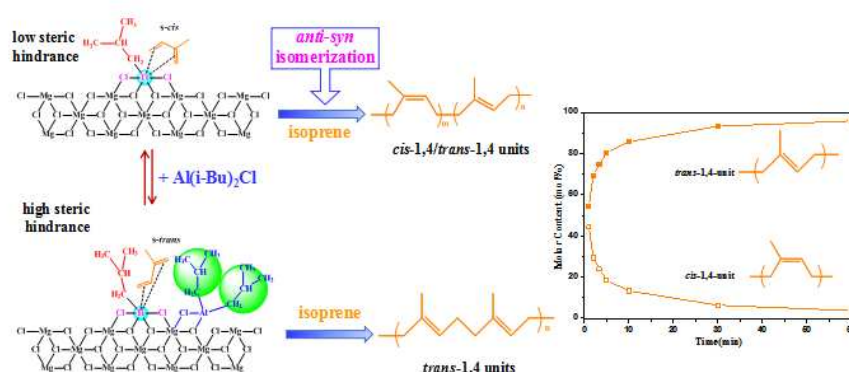
Accepted Date: 20 February 2018

Please cite this article as: Liu X, Li W, Niu Q, Wang R, He A, *Trans*-1,4- stereospecific polymerization of isoprene with MgCl₂-supported Ziegler-Natta catalyst I. Initial polymerization kinetic and polymerization mechanism, *Polymer* (2018), doi: 10.1016/j.polymer.2018.02.042.

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Trans-1,4- Stereospecific Polymerization of Isoprene with**MgCl₂-Supported Ziegler-Natta Catalyst****- Initial Polymerization Kinetic Behavior and Polymerization****Mechanism**

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Scheme 1. Proposed active center sites and polymerization mechanism of isoprene in TiCl₄/MgCl₂ system.

Trans-1,4 stereospecific polymerization mechanism of isoprene with heterogeneous TiCl₄/MgCl₂-Al(*i*-Bu)₃ Ziegler-Natta catalyst was investigated for the first time. The active centers with low steric hindrance gave the mixed *cis*-1,4/*trans*-1,4 units due to reversible *anti-syn* isomerization, the active centers with high steric hindrance formed by adsorption of Al(*i*-Bu)₂Cl on Mg adjacent to the center Ti gave the high *trans*-1,4 units. The *trans*-1,4-polyisoprenes gradually increased with the increase in polymerization time accompanying with the gradually transformation of species with low steric hindrance to species with high steric species in the initial polymerization stage.

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