

**EFFECT OF EXTERNAL SILANE DONORS ON ZIEGLER-NATTA  
CATALYST FOR POLYMERIZATION OF PROPYLENE**

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for the Degree of Master of Science  
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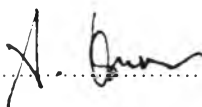
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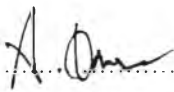
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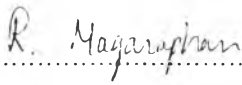
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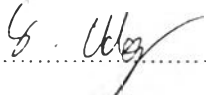
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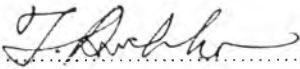
  
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**ABSTRACT**

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The effect of external silane donors of propylene polymerization, with a  $\text{MgCl}_2$ -supported  $\text{TiCl}_4$  catalyst activated by  $\text{Al}(\text{C}_2\text{H}_5)_3$ , has been investigated. Five types of alkoxy silanes were used as external donors. The degree of isotactic index and activity depended on the types of alkoxy silane and amount of external donor used. Iso and cyclic structures of external donors enhanced the isotactic index. Addition of small amounts of external donors led to a significant increase in activity and isotactic index. At constant external donor content, an increase of Al/Ti resulted in an increase in activity and a decrease in isotactic index. Moreover, the activity of the polymer increased while the isotactic index decreased with increasing hydrogen concentration. The number average molecular weight ( $\overline{M}_n$ ) of the polypropylene decreased as a result of hydrogen addition for the polymerization in the absence and presence of all electron donors.



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