

论文

球形MgCl₂负载钛催化剂催化苯乙烯等规聚合与产物分子量分布研究

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摘要 采用球形高效负载ZieglerNatta催化体系(TiCl₄-MgCl₂AlR₃二苯基二甲氧基硅烷(DPDMS)合成等规聚苯乙烯(*i*PS), 催化效率最高可达7.7×10³gPS/g/Ti·h. 通过多个Schulz-Flory最可几分布对产物的分子量分布曲线拟合分峰来研究*i*PS的分子量及分子量分布的变化, AlEt₃能使产物中低分子量部分含量增加, Al(*i*Bu)₃则倾向于形成高分子量的活性中心. 体系中加入氢气不仅能显著提高催化效率, 而且使*i*PS的分子量分布显著增宽.

关键词 [等规聚苯乙烯](#) [分子量分布](#)

分类号

SYNTHESIS OF ISOTACTIC POLYSTYRENE WITH MgCl₂ SUPPORTED TITANIUM CATALYST AND STUDIES ON ITS MOLECULAR WEIGHT DISTRIBUTION

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Abstract The highest catalytic efficiency of styrene polymerization reached 7.7×10³gPS/gTi·h by using MgCl₂ supported spherical Ziegler-Natta catalyst systems(TiCl₄·MgCl₂ / AlR₃ / diphenyldimethoxy silane). ¹³C-NMR analysis showed that the products were isotactic. The influences of polymerization conditions on molecular weight and molecular weight distribution (MWD) were studied by fitting the GPC curves of isotactic polystyrene (*i*PS) with the Schulz-Flory“most probable”distributions. When triethylaluminium was used as cocatalyst. the produced *i*PS may have more low molecular weight fractions. *i*PS with narrow distribution was produced with triisobutylaluminium as cocatalyst. When molecular hydrogen was added in the system, the catalytic efficiency was increased and the MWD of *i*PS was strongly broadened.

Key words [Isotactic polystyrene](#) [Molecular weight distribution](#)

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