

عنوان مقاله:

Amoco CD commercial polypropylene catalyst tailor-made for the Amoco-Chisso gas phase process

محل انتشار:

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نویسندگان:

G Gregory - Oakwood Consulting, Inc., Wheaton, Illinois, 60187, USA

Arzoumanidis

خلاصه مقاله:

The commercial profile of the Amoco CD MgCl method of preparation/production, with emphasis on particle morphology, and the parameters affecting particle size (PS), 2 supported polypropylene catalyst is presented. The development, the unique particle size distribution (PSD), and particle shape are discussed in detail. The outstanding performance of the catalyst, tailored made for the Amoco-Chisso gas phase process, is attributable to synergistic effects, originating from catalyst and process design factors. Catalyst median particle size (d₅₀) may be controlled in the 7-100 microns range. Parameters affecting PS and PSD during catalyst support preparation include: agitation speed, temperature, organic reagent to Mg ratios, morphology controlling agents, and deliberate spiking of the aromatic solvent used with appropriate contaminants. Particle shape variation between the cubic and spheroidal is affected by the types of reagents used, the ratios of these reagents to Mg, the time/temperature profile of the procedure, and the sequence of reagent addition during catalyst support preparation. Catalyst activation takes place in several steps by thermal treatment of the support with TiCl₄/toluene solutions. Cost-effective TiCl₄/toluene reuse system from the activation streams has been put in place to reduce waste material considerably. There is an optimum temperature of activation close to 120°C. The progress of activation as well as catalyst quality may be monitored by IR spectroscopy, expressed in easily identifiable IR fingerprint patterns, which correlate well with the catalyst performance. More recently a new concept of supported catalysts based on the CD technology has been developed. It features organometallic complexes instead of just TiCl₄ as the polymerization active centers. The new catalysts show improved performance and advantageous polymer product properties. We suggest that the newly invented organometallic complexes may open a new era in polyolefin catalysis, including polyethylenecopolymers. The success of the CD and Amoco-Chisso process is illustrated by the two dozen commercial plants worldwide that use the technology, and the recent licensing advances by Ineos, the successor of Amoco, for this polypropylene technology. Polyolefins J (2014) 1: 131-137

کلمات کلیدی:

Amoco CD polypropylene catalyst; gas phase; Amoco-Chisso process

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