Titanium-magnesium catalysts containing tetrahydrofuran and ethyl acetate for ethylene polymerization.

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Streszczenie

A complex [TiCl3(THF)2(CH3C02C2H5] (I) was used as a precursor of titanium-magnesium catalysts for ethylene polymerization. Tire
complex was ball-milled in hexane with [MgCl2(THF)2] and activated with AlEt3 used as cocatalyst for 15 min at 323 K. Ethylene was polymerized at 323 K in hexane at a pressure of 0.5 MPa. The reaction was quenched with methanolic 5% HC1 and the polymer was washed with methanol and dried at 303 K for 12 h at 5 hPa. The catalyst was found to be very active. Depending
on the nature of the cocatalyst used, the catalyst activity varied within a range of 21.5—93.0 kg PE/(g Ti • h) and the resulting polymer was characterized by specific gravity 0.955—0.968 g/cm3, bulk density 115—128 g/dm3, crystallinity 57.5—61.7% and molecular weight distribution width 9.04—11. The complex (I) is believed to decompose at the catalyst preparation
step. Catalyst activities of (I) were compared with those of catalysts based on titanium(III) and titanium(IV) chlorides and their complexes with Lewis bases. Pure (I) activated with organoaluminum compound is inactive in low-pressure ethylene polymerization

Słowa kluczowe

[TiCl3(THF)2(CH3C02C2H5] as precursor of Ti-Mg catalysts, ethylene polymerization, catalyst activity, polymer properties.

Strona internetowa wydawcy

https://ichp.pl/