

Abstract

A catalyst for ethylene polymerization, a process for preparing the same and use thereof

The invention provides an improved catalyst for ethylene polymerization, comprising a reaction product of: (i) titanium-containing active component, comprising at least one magnesium dihalide, at least one titanium halide, at least one electron donor compound, and at least one alkyl silicate of formula $\text{Si}(\text{OR})_n\text{X}_{4-n}$ in which X is a halogen atom and R is an alkyl having from 1 to 10 carbon atoms supported on superfine inorganic oxide support, wherein molar ratio of OR group to Ti meets an inequation of $0 < \text{OR}/\text{Ti} < 1$, and said electron donor compound is selected from the group consisting of ethers, esters and ketones; and (ii) activator component: an organoaluminium compound of formula $\text{AlR}'_n\text{X}_{3-n}$, in which R' represents hydrogen or a hydrocarbyl having from 1 to 20 carbon atoms, X represents a halogen, and n is a value meeting $1 < n \leq 3$. When this catalyst, together with an organoaluminium cocatalyst, is used in copolymerization of ethylene and a higher alpha-olefin, obtained polyethylene has reduced hexane extractable, catalyst activity is markedly enhanced, and particle morphology and particle size distribution of the polymer are also improved.