



METHOD OF MULTISTAGE GAS PHASE POLYMERIZATION,
APPARATUS THEREFOR AND DEVICE FOR REDUCING
ENTRAINMENT OF SUBCOMPONENTS IN POLYMER POWDER IN
APPARATUS FOR MULTISTAGE GAS PHASE POLYMERIZATION

ABSTRACT

A method of multistage gas phase polymerization, comprising performing polymerization of a feed gas mixture at least containing ethylene gas, an α -olefin gas and hydrogen gas in an upstream arranged fluid bed reactor to thereby obtain polymer powder, taking up the polymer powder therefrom and performing further polymerization of the polymer powder in a downstream arranged fluid bed reactor, the downstream arranged fluid bed reactor continuously connected to the upstream arranged fluid bed reactor so that the polymer powder taken up from the upstream arranged fluid bed reactor is introduced into the downstream arranged fluid bed reactor, which method comprises the steps of: taking up polymer powder from an upstream arranged fluid bed reactor, treating the taken up polymer powder so as to lower a content of α -olefin gas and hydrogen gas therein, and introducing the treated polymer powder into a downstream arranged fluid bed reactor. In this multistage gas phase polymerization method, when the polymer powder

taken up from the upstream fluid bed reactor is carried while being entrained by a feed gas for the downstream fluid bed reactor so that the polymer powder is introduced into the downstream fluid bed reactor, hydrogen gas and comonomers which inhibit the polymerization reaction in the downstream fluid bed reactor and which render regulation of desired polymer properties difficult are removed from the polymer powder.