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Homogeneous Ziegler–Natta Polymerisation: a Kinetic Approach 2. Transient-State Kinetics

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ABSTRACT

An integrated view is presented of several possible mechanisms applicable to the interpretation of homogeneous Ziegler-Natta polymerisation. In this paper, the transient aspects related to the kinetics of Ziegler-Natta polymerisation are investigated. Extensive data are used to construct kinetic profiles (r_M vs. t) from a theoretical approach. Special attention is given to the duration of the transient period as a function of the different kinetic parameters. The kinetic models developed are fitted to experimental data, either directly obtained by the authors or published in the literature. These general models have a broad range of application.

Key words: homogeneous catalysis, Ziegler-Natta, kinetics, modelling

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