

Alternative Methods of Initiation Applied to the Preparation of Polymer Colloids

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In modern production of polymers control over the molecular microstructure in terms of, for example, molecular weight distribution and chemical composition distribution becomes of increasing importance. Controlled radical polymerization, in the form of atom transfer radical polymerization (ATRP) or nitroxide mediated polymerization, opens many new possibilities to control molecular microstructure. Many new alternative methods of initiation are in principle also applicable to the preparation of polymer colloids. Some of the alternative initiation/termination methods that have been tested in emulsion polymerization processes include; ATRP, nitroxide mediated polymerization, metallocene induced polymerization, photoinitiation, ultrasound initiation and electron beam initiation. The three latter methods also open the possibility to modulate the initiation/termination steps and therefore have additional control over molecular weight.

Some examples will be given of own work^{1,2} and work of others in the area of alternative methods of initiation.

- 1 S. A. F. Bon, M. Bosveld, B. Klumperman and A. L. German
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- 2 A. M. van Herk, H. de Brouwer, Bart G. Manders, L. H. Luthjens, M. L. Hom, A. Hummel
Pulsed electron beam polymerization of styrene in latex particles
Macromolecules, **29**, 1027 (1996)