

## ON THE ROLE OF 1,1-DIPHENYLETHYLENE IN AQUEOUS HETEROPHASE POLYMERIZATION

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The contribution elucidates the role of 1,1-diphenylethylene (DPE) in aqueous heterophase polymerizations under two points of view. First, the influence of DPE as comonomer in normal emulsion polymerizations is reported and the structure of resulting polymers is analyzed. The copolymers possess a very special structure that is characterized by a so-called  $\alpha$ , $\beta$ -dimer unit as bridge between two blocks of the neat main monomers. Second, the application of these copolymers (precursor polymers) in a subsequent radical polymerization leads to the formation of block copolymers. Thus, the application of DPE and its copolymers, respectively, is an alternative way to control radical polymerization with regard to copolymer morphology in general and to tailor particle morphology in heterophase polymerizations in particular. Results are presented regarding block copolymer yields and latex properties such as solids content and particle diameter in dependence on the polymerization conditions, particularly the precursor polymer concentration, monomer concentration and initiator type. Based on these results a mechanism of this kind of controlled radical polymerization under the special conditions of heterophase polymerizations is discussed.