Effects of initiator type and content on the polymerization of toner particles

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Polymerized toner can overcome the problems of pulverized toner and make high-speed and high-quality color laser printing possible. In this study, styrene based suspension polymerized toner was prepared using an inorganic suspending medium composed of calcium chloride and trisodium phosphate. The enhancement of image quality requires that toners have a very small particle size within a narrow size distribution. To achieve a small particle size and a uniform particle size distribution, a syringe needle was used to feed oil phase into water phase. The effects of initiator type (3types) and content (2, 4, 6%) on the polymerization of toner particles were elucidated by measuring the molecular weight of the binding polymers within toner particles. Toner particle size and particle size distribution as well as thermally induced melting characteristics of toner particles were also investigated. Preparing high-quality polymerized toner would be possible using the optimized initiator type and content results of this study.