Morphology and crystal phase behaviors of precipitated calcium carbonate by anionic surfactant

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Precipitated calcium carbonate synthesized by calcinations, hydration and carbonation process of limestone shows so higher brightness, opacity and ink receptivity that the demands in paper industry are gradually increased. Especially, the vaterite crystal phase of spherical and porous structure has so higher light scattering and ink absorption properties that could be used as excellent materials for paper filler. In this study, vaterite precipitated calcium carbonate which has spherical and porous structure was synthesized by wet-chemical reaction. In the synthetic process of precipitated calcium carbonate, anionic surfactant effects on morphology and crystallization behaviors of precipitated calcium carbonate were investigated. In consequence of SEM, XRD, PSA, FT-IR analyses of precipitates formed by the reaction of precursors and surfactant, it was found that the precipitated calcium carbonate show spherical porous structure and vaterite crystal phase as the addition of anionic surfactant.