

A Study on the Peptization Reaction in Anatase TiO₂ Film Preparation by Sol-Gel Method

유승준*, 윤호성¹, 장희동¹, 황경준, 곽동희, 이세일, 이재욱²,
정홍조³, 이준용
서남대학교; ¹한국지질자원연구원; ²조선대학교; ³신경대학교
(sjyoo001@hanmail.net*)

We investigated the effects of peptization as a continuous process after aging in TiO₂ sol preparation process on characterization of calcined TiO₂ particles in this study. From the results, we found that there was no crystallinity and microstructure changes of calcined TiO₂ particles as well as TiO₂ sol particles according to peptization. But there was a decrease of average pore diameter in TiO₂ sol particles at the beginning of the peptization. It shows that the adsorbed H₂O molecules on agglomerated TiO₂ sol particles were replaced by H₃O⁺ of added peptization agent and then TiO₂ sol particles were repulsed against each other. As the result, the macropores within TiO₂ sol particles disappeared. Here, the peptization phenomenon occurred since agglomerated particles binded hydrogen bonds and olation bonds have been broken their bonds by the added H₃O⁺, there was happened to be peptization phenomenon. In summary, we concluded that microstructure of calcined TiO₂, particles was controlled by aging stage in sol preparation process and peptization was the process of finely suspended TiO₂ sol preparation.