

Solvothermal method에 의한 Al/TiO₂, V/TiO₂, Al-V/TiO₂ 나노 필름 제조 및 친수 성능 평가

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Recently, the TiO₂ application has attracted a good deal of attention on purification and treatment of water and air, which are concerned in the protection of the environment. In particular, the TiO₂ nano-sized powder has been widely used not only for their high photo-catalytic activity but also for their photo-induced super-hydrophilic properties. In our previous study, we could also find that transition metals (Me³⁺ or Me⁵⁺) incorporated TiO₂ anatase framework generated bronsted acid sites, which could be more draw water molecules, in particular, for Al and V. However, it was also revealed that the nanometer powder film fixed by a binder was easily detached from the supports in strong acidic or basic liquid phases. Therefore, this study introduces a solvothermal method to synthesize the colloidal solutions having the nano-sized Al_xTi_{1-x}O_y, V_xTi_{1-x}O_y, and Al_xV_yTi_{1-(x+y)}O_z particles. The colloidal solutions are directly coated on supports without any binders. In addition, we have tried to find out the relationship between their physical properties and their super-hydrophilic property. 본 연구는 한국과학재단 젊은과학자연구활동지원과제(과제번호 R08-2003-000-10434-0)에 의해 수행되었으며 이에 감사를 드립니다.