

RESEARCH NOTES

复合氧化物TiO₂/SiO₂性质研究

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摘要 The nanometer particles of TiO₂ and TiO₂/SiO₂ oxides were prepared by sol-gel and supercritical fluid drying method. The properties of TiO₂ and TiO₂/SiO₂ were characterized by means of BET(Brunner-EmmettTeller method), TEM(transmission electron microscopy), SEM(scanning electron microscopy), XRD(X-ray diffraction) and FTIR(Fourier transform-infrared) techniques. The effects of different preparation route, prehydrolysis and non-prehydrolysis, on the properties of TiO₂/SiO₂ oxide were also examined. Experimental results show that the thermal stability of pure TiO₂ is improved greatly when it is mixed with SiO₂ in nanometer level. The composite TiO₂/SiO₂ oxides form Ti-O-Si chemical bonds, which creates new Brønsted acidity sites. The acidity character is related to TiO₂/SiO₂ chemical composition and preparation methods. The acidity of TiO₂/SiO₂ oxides by prehydrolysis is greater than that of by non-prehydrolysis. Ti atom is rich on the surface of TiO₂/SiO₂.

关键词 [sol-gel](#) [CO₂ supercritical fluid drying](#) [nanometer powder](#) [TiO₂/SiO₂](#)

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Study on Properties of Composite Oxides TiO₂/SiO₂

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Key words [sol-gel](#); [CO₂ supercritical fluid drying](#); [nanometer powder](#); [TiO₂/SiO₂](#)

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