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## Catalytic Reactions of Ethanol over TiO<sub>2</sub>-supported Vanadia Catalysts

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In this study, V<sub>2</sub>O<sub>5</sub>/TiO<sub>2</sub> catalyst was measured reactivity of ethanol when vanadia ratio was increasing. First, V<sub>2</sub>O<sub>5</sub>/TiO<sub>2</sub> catalyst was prepared to the increasing vanadia (VO<sub>x</sub>) ratio as 0.2, 1, 10 wt%. And we were used X-ray diffraction (XRD), then not appear markedly peak to pure vanadia about XRD analysis. So we were decided vanadia that was evenly dispersed on TiO<sub>2</sub>. Result about temperature-programmed reduction (TPR) analysis was obtained 3 reactions that was dehydrogenation from obtained to acetaldehyde, dehydration from obtained to ethylene, condensation from obtained to diethyl ether. If vanadia ratio was increasing in V<sub>2</sub>O<sub>5</sub>/TiO<sub>2</sub>, reactions temperature of ethanol was known lower. And condensation into diethyl ether is quenched away with increasing vanadia loading. In addition, competition between reductive dehydration and oxidative dehydrogenation occurs, while the selectivity toward dehydrogenation is favored with increasing vanadia loading.