

The Study of ${}^7\text{Li}$ & ${}^{51}\text{V}$ Solid State NMR on the $\text{Ag}_x\text{V}_2\text{O}_5$ Xerogel for Lithium Secondary Batteries

Gun-Tae kim, Man-Ho Lee, Hei-Ku Park*

*Dept. of Industrial Chemistry, Kyungpook National University, Keimyung
University**

We have performed a study of the electrochemical characteristics and the Nuclear Magnetic Resonance (NMR) of ${}^{51}\text{V}$ and ${}^7\text{Li}$ with the $\text{Ag}_x\text{V}_2\text{O}_5$ xerogel which is active material for the cathode in Lithium secondary batteries. Doped silver vanadium pentoxides with a doping ratio Ag/V ranging from 0.06 to 0.22 were synthesised by sol-gel process. Several sites for the Li ion intercalation exist between the layers of the xerogel, and average cell potential was 2.9V vs. Li/Li^+ . ${}^7\text{Li}$ and ${}^{51}\text{V}$ NMR study was performed by singel(MAS) and spin-echo pulse sequence, respectively. In NMR, we could confirm the several sites of Li^+ ions intercalated into the xerogel, and as Li^+ is intercalated, the charge of vanadium nucleus was changed into lower charge state.