

KO10. STUDIES ON THE ACIDITY OF PHOSPHOTUNGSTIC ACID (HPW) SUPPORTED ON POROUS KAOLIN AND EFFECTS ON THE CATALYTIC ACTIVITY

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Kaolin is an abundant clay mineral and chemically natural hydrous aluminosilicate with the 1:1 type layered structure. In this work, mesoporous material derived from raw kaolin was obtained using starch as organic template. The surface area of the kaolin derived porous clay heterostructure (PCH) has increased remarkably from 15 to 756 m²g⁻¹ with pore volume of 0.65 cm³g⁻¹. The FTIR spectra after pyridine adsorption showed that both raw kaolin and PCH possessed mainly strong Lewis acid sites. A phosphotungstic acid (HPW) supported on PCH was synthesized by a wet impregnation method. HPW incorporated into PCH significantly increased the surface acidity by forming mainly Brønsted acid sites. The reactivity of HPW supported on PCH was studied in the Friedel-Crafts acylation of anisole with propionic anhydride. Results from catalytic activity showed that *p*-methoxypropionophenone is the main product with propionic acid as the main side product. The role of Lewis and Brønsted acidities in acylation of anisole is demonstrated by varying the amount of Lewis and Brønsted acid sites.

Keywords: phosphotungstic acid; mesoporous kaolin; Lewis and Brønsted acid sites; acylation of anisole

KO11. SURFACE MODIFIED ORDERED MESOPOROUS CARBON AS AN ELECTRODE MATERIAL FOR SUPERCAPACITOR

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In this paper, ordered mesoporous carbon was prepared by using Santa Barbara Amorphous (SBA-15) as a template and sucrose as a carbon precursor. The as-synthesized ordered mesoporous carbon was subsequently modified with nitric acid solution. The physicochemical properties of prepared samples were analyzed by X-ray diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM), nitrogen adsorption-desorption analysis, Fourier Transform Infrared Spectroscopy (FT-IR) and Boehm titration. The results showed that the carbon replication process was successful. The electrochemical studies were carried out using cyclic voltammetry (CV) and galvanostatic charge-discharge (GCD) in 1 M KOH aqueous solution for 1000 cycles. After surface modification, the specific surface area and pore volume of ordered mesoporous carbon decreased but the specific capacitance of the electrode material has significantly increased from 235 Fg⁻¹ to 341 Fg⁻¹ at a scan rate of 25 mVs⁻¹.

Keywords: Ordered mesoporous carbon; SBA-15; template; surface modification; electrochemical

KO12. SAXS, FESEM AND BET STUDIES OF MESOPOROUS CATALYST SBA-15 CONTAINING ZINC PORPHYRIN FOR EPOXIDATION OF LIMONENE

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SBA-15 nanoporous silica was prepared by cooperation assembly of tetraethylorthosilicate precursor in the presence of poly (ethylene glycol)block- poly (propylene glycol)block- poly (ethylene

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KO13. SYN

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