

Preparation and Catalytic Performance of Functionalized Mesoporous Silica/Ceria-Silica Composites

_____* , Pal Nabanita¹, _____²
; ¹Saha Institute of Nuclear Physics;
²
(echo@seoultech.ac.kr*)

We present the preparation method and characterization of various mesoporous silica/ceria-silica composites using cerium hydroxide (or cerium nitrate) and TEOS precursors in the presence of a cationic surfactant under basic conditions. Mn-doped mesoporous silica/ceria-silica was also prepared using sol-gel method. Ce content (Ce/Si) was up to 0.5 confirmed by ICP methods maintaining hexagonal mesostructure. In case Manganese was incorporated inside the composites, the Ce content was up to 0.3. Catalytic performance of ceria-silica and Mn-doped ceria-silica composites were investigated for oxidation and esterification reactions. The results showed catalytic performance is quite effective in solvent-less and mild temperature conditions.