Synthesis of Mesophorous Silicas Using Anionic Surfactants and Alkoxysilanes

백유선, 조성준*
전남대학교 응용화학공학부
(sjcho@chonnam.ac.kr*)

Mesoporous silicas have been synthesized using anionic surfactants and various alkoxysilanes, 3-aminoproprytriethoxysiliane (APTES), [3-(diethylamino)propyl]-trimethoxysilane (DEAPTMS), 3-[2-(2-aminoethylamino)ethlyamino]propyl-trimethxysilane (AEAEPTMS), 3-(2-aminoethylamino)propyl-trimethxysilane (AEPTMS) by adjusting the pH to the pK_a of the corresponding alkoxysilanes. The ratio of alkoxysilane to tetraethyl orthosilicate (TEOS) was controlled to 1:1. The obtained surfactant-silica composite was slurred in the CH_3CN solution to remove the surfactant. Depending on the type of surfactants, $C_{12}OOH$, $C_{14}OOH$, $C_{16}OOH$ and $C_{18}OOH$ and the concentration of alkoxysilanes, various mesoporous structure has been derived. In the case of APTES and AEPTMS, the hexagonal mesoporous structure was obtained. The diffuse mesoporous structure was obtained when DEAPTMS and AEAEPTMS were used, respectively. The result of physicochemical characterization of the obtained mesophorous silcas will be presented.