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Low-cost synthesis of hollow mesoporous silica spheres and its application in the removal of aromatic volatiles

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Abstract

In the paper, hollow mesoporous silica (HMS) spheres were prepared by an environment-friendly and low-cost method using cheap sodium silicate as silica precursor and inexpensive cationic polystyrene spheres as interior templates. Hollow structure with uniform size were characterized by TEM and SEM images. Nitrogen adsorption-desorption isotherm was used to confirm mesoporous structure with BET surface area of 424 m²/g and narrow pore size distribution. TG-IR was utilized to investigate the influence of HMS spheres on the removal of aromatic volatiles. The as-prepared HMS spheres exhibited high removal ability of aromatic volatiles, mainly

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