

## **Silica coated ionic liquid templated mesoporous silica nanoparticles**

### **ABSTRACT**

A series of long chain pyridinium based ionic liquids 1-tetradecylpyridinium bromide, 1-hexadecylpyridinium bromide and 1-octadecylpyridinium bromide were used as templates to prepare silica coated mesoporous silica nanoparticles via condensation method under basic condition. The effects of alkyl chain length on particles morphology were primarily studied. The materials were characterized by X-ray diffraction, transmission electron microscopy and nitrogen adsorption-desorption. Analysis indicates that the particles obtained were in spherical shape with decreasing size as the alkyl chain length of ionic liquid increases. The materials also show increase of BET surface value as the alkyl chain length increases from the range 19 m<sup>2</sup>/g to 23 m<sup>2</sup>/g.

**Keyword:** Mesoporous silica; Ionic liquid, Pyridinium; Nanoparticles