

**SYNTHESIS OF FLUOROPHORE-DOPED SILICA  
NANOPARTICLES USING STOBER METHOD**

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## ABSTRACT

Fluorophore doped silica nanoparticles were successfully synthesized using Stober method. In this method, temperature and curing time serve as constant variable and the concentration of dye which is the mixture of fluoresceine, APTES and water were taken as manipulated variable. The process include cross linkage between isothiocyanate and amine group. Three experimental trials were conducted with different concentration of dye. The particles formed is then characterized by FTIR, DLS, XRD and fluorescence spectrometer. The effect of concentration of dye on physical properties were analysed using FTIR. The result shows there is an existence of silica, and carbonyl group which indicate that the dye molecules are incorporated in silica nanoparticles. All sample are detected to be fluorescence. Based on DLS result, the size of silica nanoparticles is increased with the increase of dye concentration with the smallest size is found to be at 340 nm. XRD pattern also show absence of crystalline form, where broad peak at  $22^\circ$  defined amorphous state of silica. The sol-gel parameters should be optimized in order to produce smaller spherical silica nanoparticles suitable for future technology.

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