

### Fabrication of the polystyrene particles coated with silver nanoparticles using polyol process

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Silvered polystyrene spheres were fabricated using polyol process with a polymer stabilizer. In the use of this novel method, nano-sized silver particles (~20nm) were homogeneously adsorbed on polystyrene (150~200nm) surface modified with the functional group of sulfonate ( $\text{SO}_3^-$ ). PS surface was modified with sulfonate of the potassium persulfate (KPS) and the 4-styrene sulfonate sodium salt. The adsorption of the silver particles was progressed in ethylene glycol (EG) used as both solvent and reducing agent. Polyol process with PVP as a polymer stabilizer is expected to use in the noble metal coating on organic or inorganic materials. The effect of variables, such as temperature, reaction time, and PVP concentration, was investigated. Silvered PS particles were characterized by transmission electron microscopy (TEM) and X-ray photoelectron spectroscopy (XPS).