

Preparation of silver-ethylene glycol nanofluid prepared with Polyacrylamide-co-Acrylicacid as dispersion stabilizer

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Silver silver-ethylene glycol nanofluid was prepared by using silver nitrate (precursor), ethylene glycol (solvent and reducing agent), and Poly Acrylamide-co-Acrylicacid (dispersion stabilizer). The size and distribution of silver particles were investigated in the different amounts of dispersion stabilizer. The concentration effect of PAA-co-AA was investigated by UV-vis spectrometer. Particle size analysis by using Zeta-potential was adopted to see the particle size distribution. Transmission electron microscopy (TEM) and image analysis were used to observe the morphology of nanoparticles, and measure the particle size, per-area, and roundness. Silver particles became smaller, and the degree of particle distribution became narrower in proportion as increasing amount of dispersion stabilizer. Typically, average particle size was about 10 nm when the ratio of PAA-co-AA/AgNO₃ is greater than 1.