

112-026

ESTIMATE OF THE PARTICLE SIZE IN NANOPARTICLES OF MAGNETITE

Paresque, M.C.(1); Castro, J.A.(1); Campos, M.F.(1); Oliveira, E.M.(2); Liuzzi, M.A.S.C.(3);
Universidade Federal Fluminense(1); Universidade Federal Fluminense(2); UFF(3); CEFET(4); Center for
Technological Education Celso Suckow da Fonseca(5);

Nanocrystalline particles of Fe₃O₄ were produced by co-precipitation in aqueous mean. The particle size of magnetite is a very important parameter, because for particle size around 30 nm there is a transition superparamagnetic for ferromagnetic. This transition profoundly affects the properties of the nanofluid. The Langevin model allows an estimate of the particle size, directly from measured hysteresis curves. In this study, the particle size was also determined by x-ray diffraction with Rietveld analysis and by a Laser Particle Size Analyzer equipment. These two methods pointed out particle size around 20 nm.