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Supporting Information

for

Two-step single-reactor synthesis of oleic acid- or undecylenic acid-stabilized magnetic nanoparticles by thermal decomposition

Mykhailo Nahorniak, Pamela Pasetto, Jean-Marc Greneche, Volodymyr Samaryk, Sandy Auguste, Anthony Rousseau, Nataliya Nosova and Serhii Varvarenko

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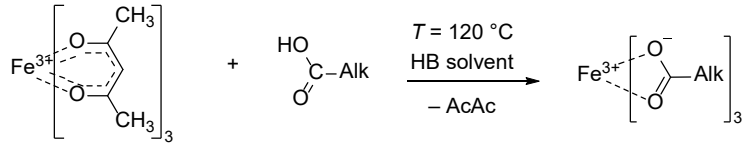
Additional figures



Fe(III) acetylacetone Fe(III) alkanoate

Figure S1: Fe(III) alkanoate is formed by the ligand exchange reaction of Fe(III) acetylacetonate in the presence of higher carboxylic acid. HB Solvent: 1-octadecene, paraffin or diphenyl.

Attenuated total reflection Fourier-transform infrared spectroscopy.

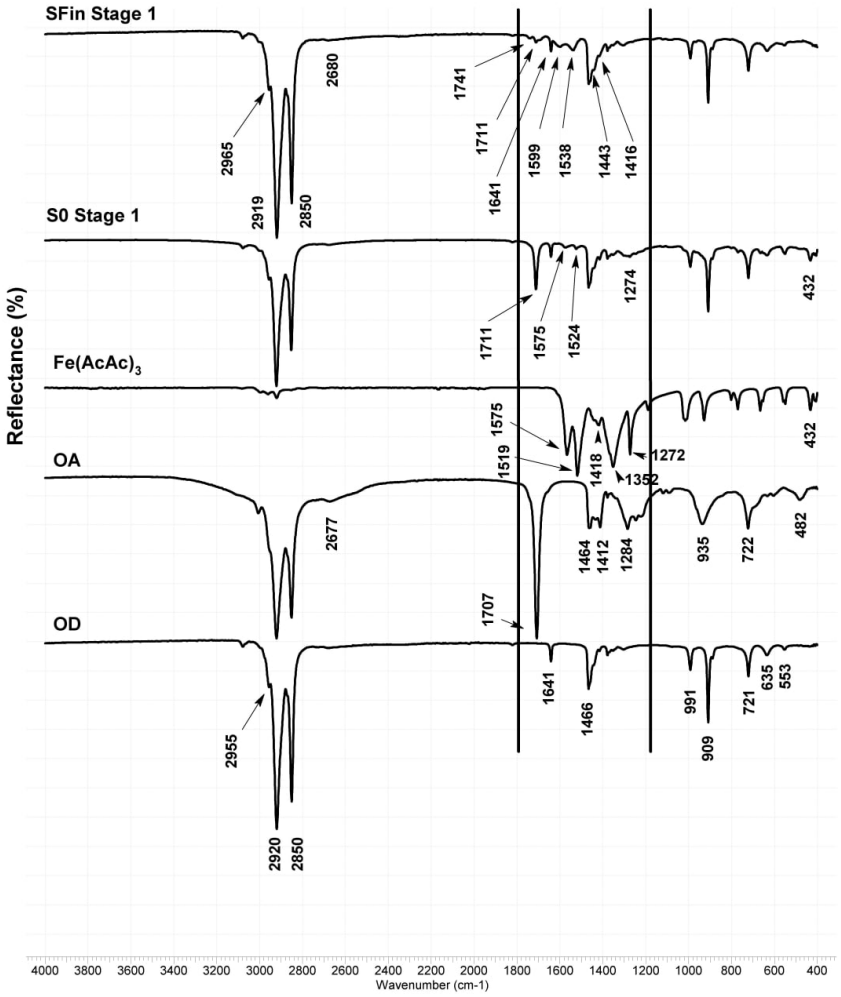


Figure S2: FTIR spectra: 1-octadecene (OD); oleic acid (OA); and Fe(III) acetylacetonate ($Fe(AcAc)_3$). Reaction mixture containing Fe(III) acetylacetonate and oleic acid in 1-octadecene at the beginning of the first stage of the synthesis of NPM prior to the removal of acetylacetone under vacuum (S0 Stage1); the reaction mixture containing Fe(III) oleate in octadecene at the end of the first stage of NPM synthesis after removal of acetylacetone under vacuum (SFin Stage1). The studies were conducted under the conditions of TMO-I sample synthesis.

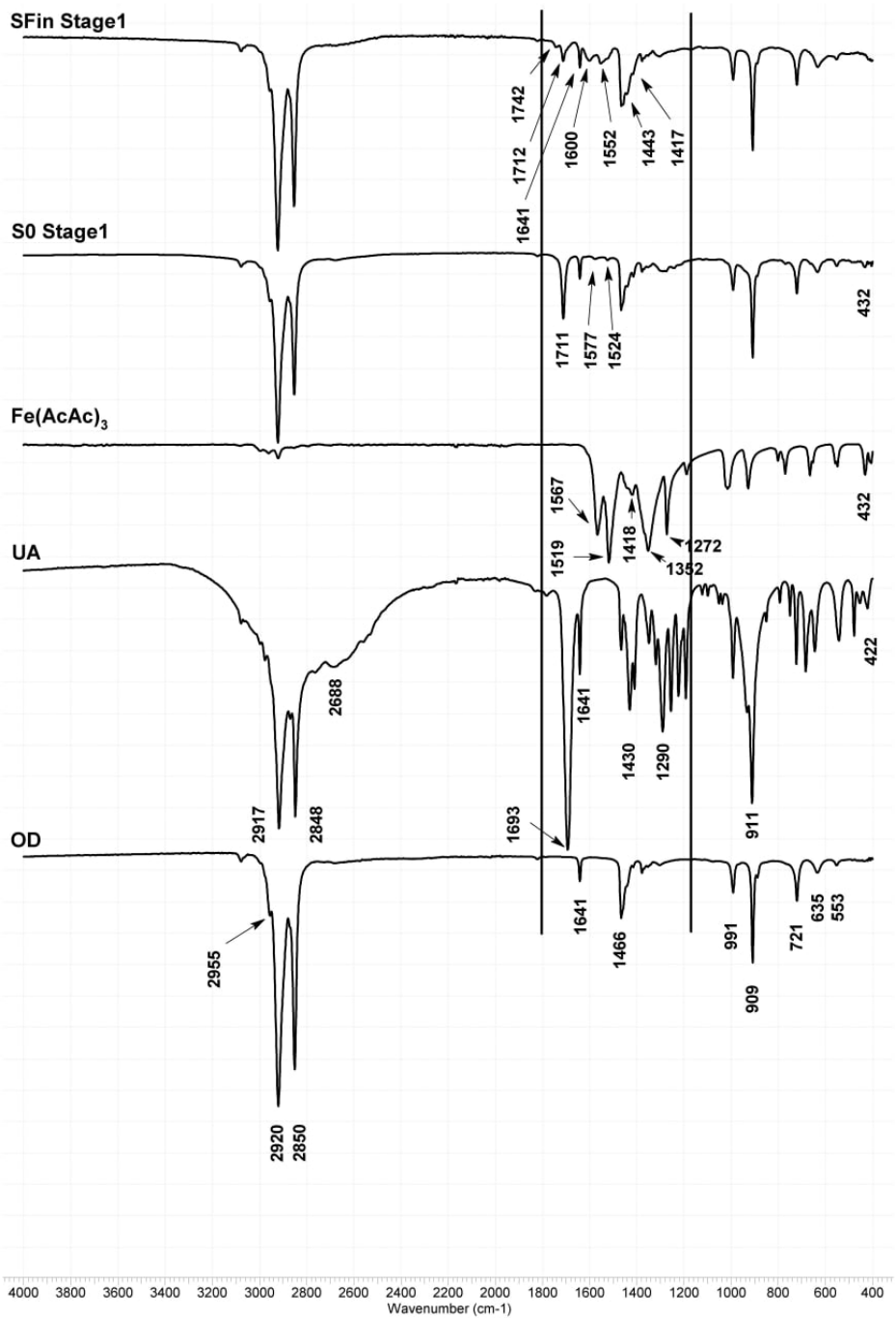


Figure S3: FTIR spectra: 1-octadecene (OD); undecylenic acid (UA); Fe(III) acetylacetonate ($Fe(AcAc)_3$). Reaction mixture containing Fe(III) acetylacetonate and undecylenic acid in 1-octadecene at the beginning of the first stage of the synthesis of NPM prior to the removal of acetylacetone under vacuum (S0 Stage1); the reaction mixture containing Fe(III) undecylate in octadecene at the end of the first stage of NPM synthesis after removal of acetylacetone under vacuum (SFin Stage1). The studies were conducted under the conditions of TMU-V sample synthesis.