Electronic Supplementary Material (ESI) for CrystEngComm.

Supporting information

Sub-nanometer scale size-control of iron oxide nanoparticles with drying time of iron oleate

Thiruparasakthi Balakrishnan, Min-Jae Lee, Jahar Dey and Sung-Min Choi*

Department of Nuclear and Quantum Engineering, Korea Advanced Institute of Science and Technology, Daejeon, 34141, Republic of Korea.

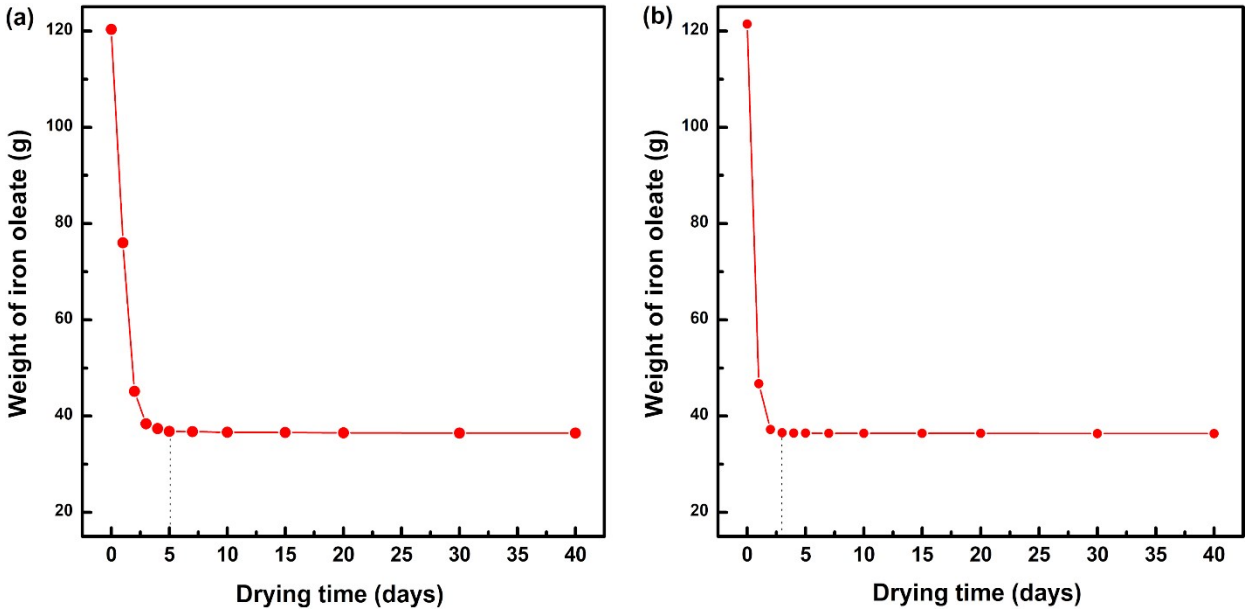

Figure S1. Weight of as-prepared iron oleate depending on the drying time. The as-prepared iron oleate is dried at (a) 30 °C and (b) 60 °C for a different amount of time.

Table S1: Elemental analysis (in wt %) of the iron oleate dried for a different amount of time.

(* indicates that the wt % is calculated by difference)

Sample	C	H	Fe	O*
Iron oleate dried for 5 days	70.35	11.16	5.56	12.93
Iron oleate dried for 30 days	70.53	11.05	5.75	12.67
$Fe_3O(oleate)_6 \cdot 4(oleic\ acid) \cdot 4H_2O$	70.37	11.14	5.45	13.04
$Fe_3O(oleate)_7 \cdot 3(oleic\ acid) \cdot 3H_2O$	70.78	11.10	5.49	12.63

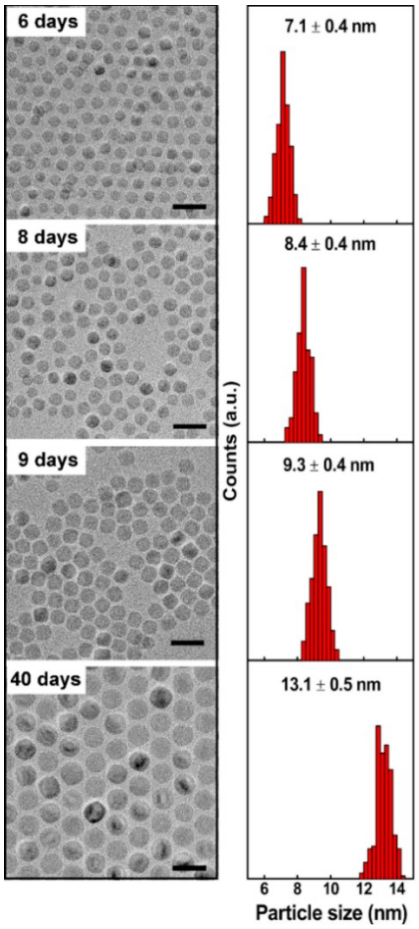

Figure S2. TEM images and size distributions of IONPs synthesized at 320 °C using the iron oleate dried at 30 °C for a different amount of time. All scale bars are 20 nm.

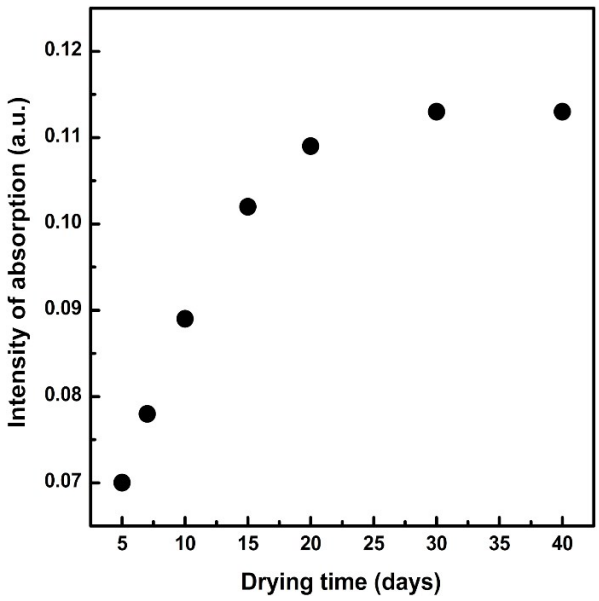

Figure S3. Asymmetric absorption peak intensity corresponding to bidentate ligands depending on the drying time of iron oleate at 30 °C.

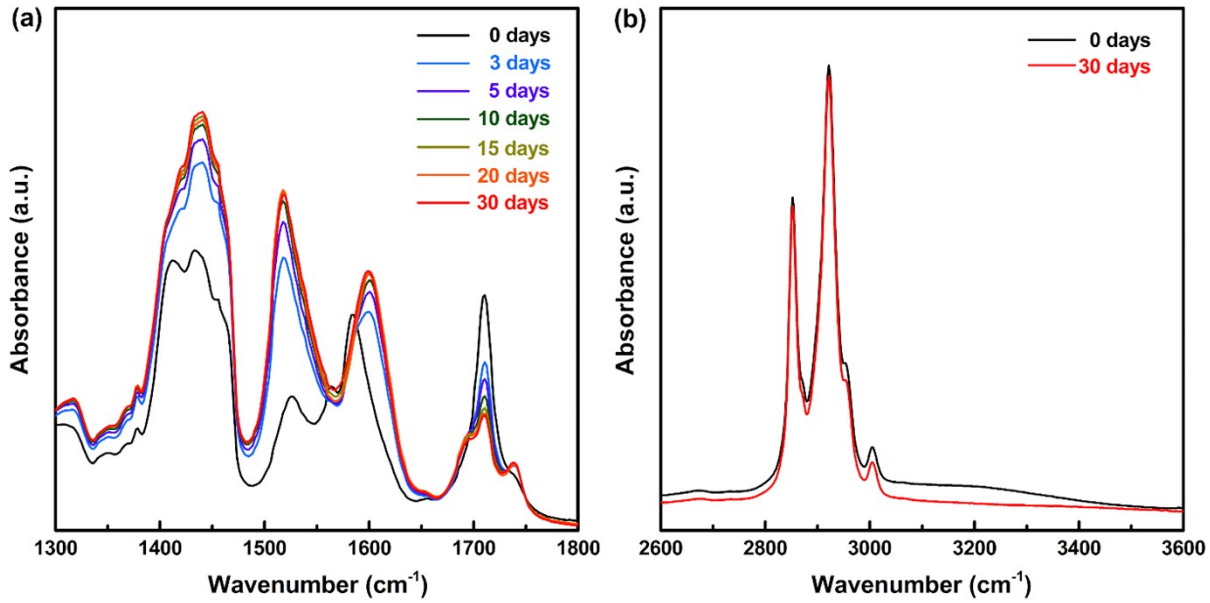

Figure S4. FTIR spectra of the iron oleate dried at 60 °C for a different amount of time. (a) Symmetric and asymmetric carboxylate (COO^-), and carbonyl (C=O) vibrations, and (b) hydrocarbon (C-H) and hydroxyl (OH) vibrations.

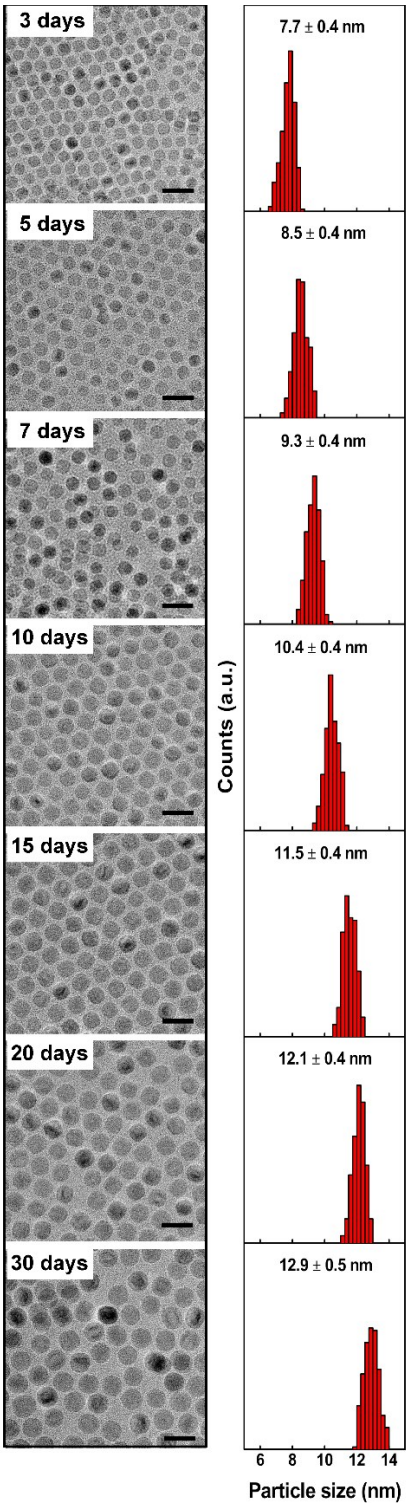

Figure S5. TEM images and size distributions of IONPs prepared at 320 °C using the iron oleate dried at 60 °C for a different amount of time. All scale bars are 20 nm.

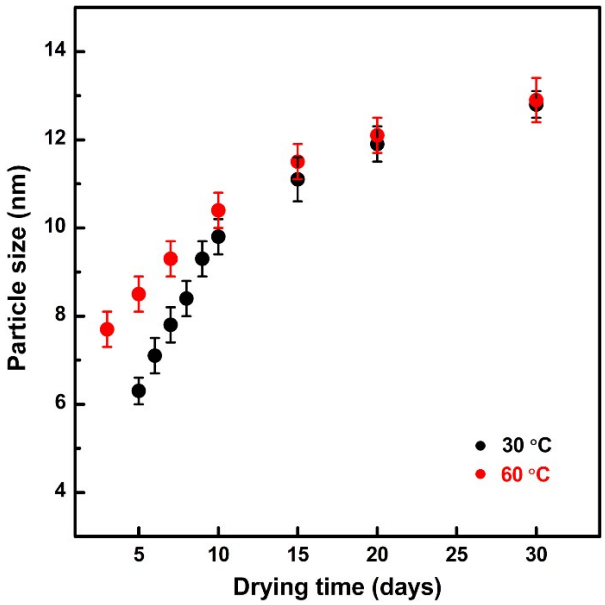

Figure S6. Size of IONPs depending on the drying time of iron oleate. The synthesis is performed at 320 °C using the iron oleate dried at 30 °C and 60 °C for a different amount of time.