

Unravelling the detrimental effect of water in the polyol synthesis of ultrathin silver nanowires

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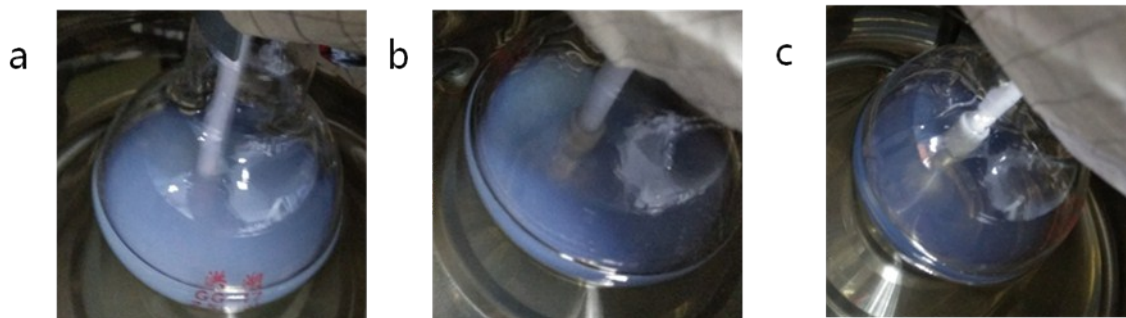


Fig. S1. Photograph of the solution in the mixing step of precursors. (a) With the addition of 10 mL ethanol, (b) without solvent addition, (c) with the addition of 1 mL DI water.

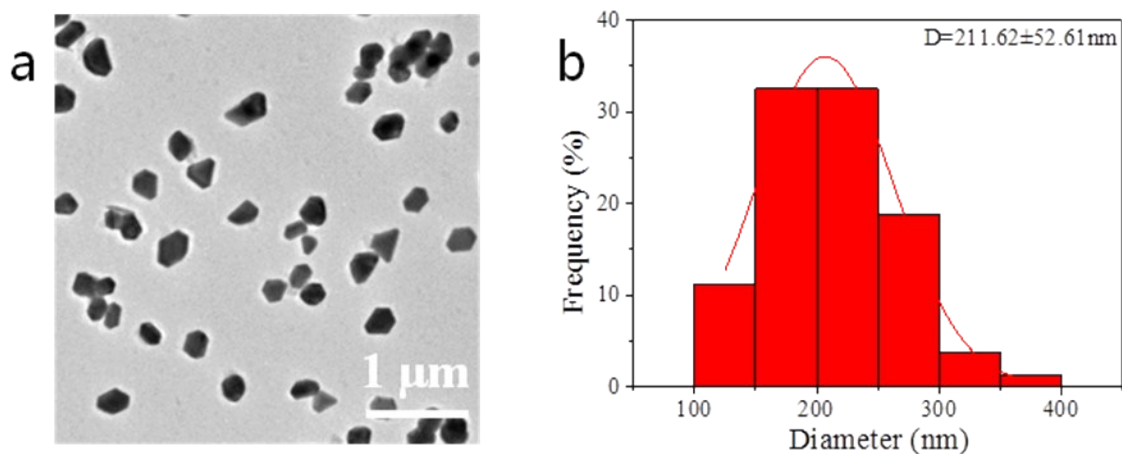


Fig. S2. TEM image (a) and statistical analysis of size dispersion (b) of particles produced in the mixing step of precursors with the addition of 10 mL ethanol.

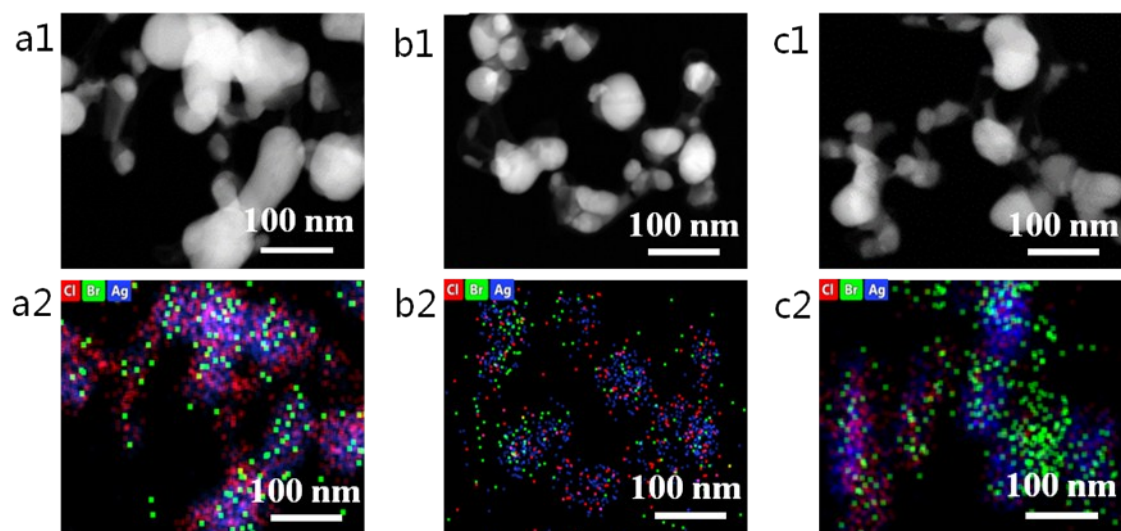


Fig. S3. TEM images of particles produced during the precursor mixing step (a1) With the addition of 10 mL ethanol, (b1) without solvent addition, (c1) with the addition of 1 mL DI-water. Corresponding elemental mapping (a2-c2).

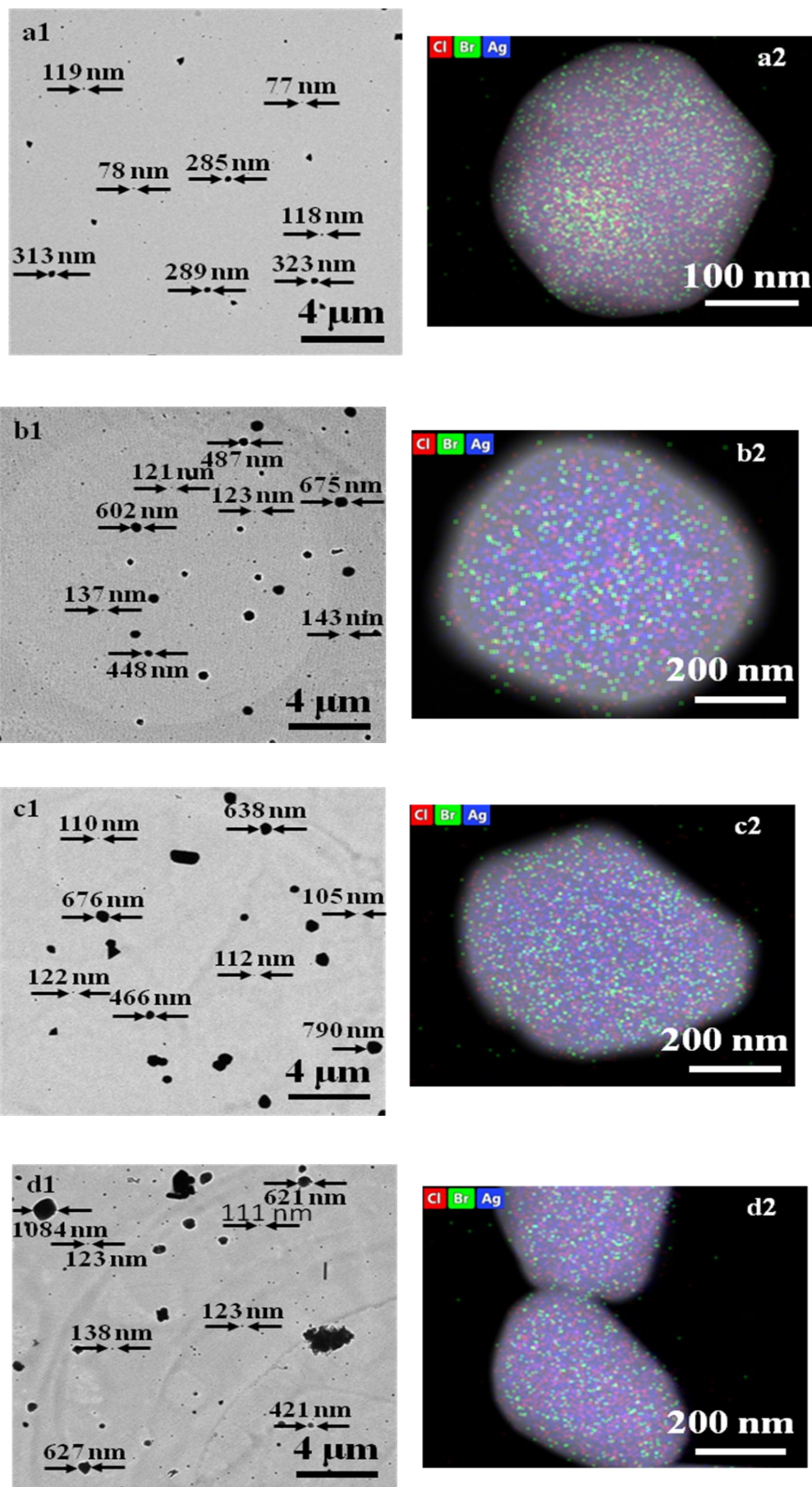


Fig. S4. TEM images of particles produced during the precursor mixing step (a1) without solvent addition, (b1)-(d1) with the addition of 0.5, 1, and 2 mL DI-water, respectively. Corresponding elemental mapping of one large particle (a2-d2).

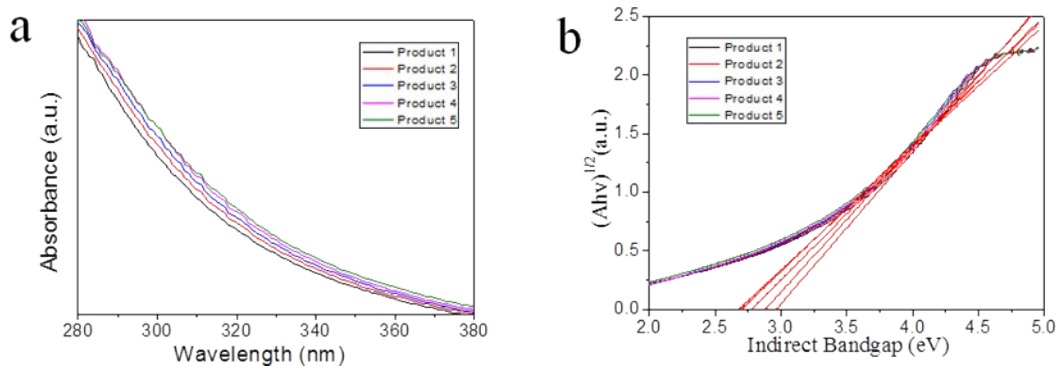


Fig. S5. Optical absorption spectra (a) and fitted bandgap value (b) of the particles produced during the mixing step of precursors. Product corresponds to (1) with the addition of 10 mL ethanol, (2) without solvent addition, (3)-(5) with the addition of 0.5, 1, and 2 mL DI-water, respectively.

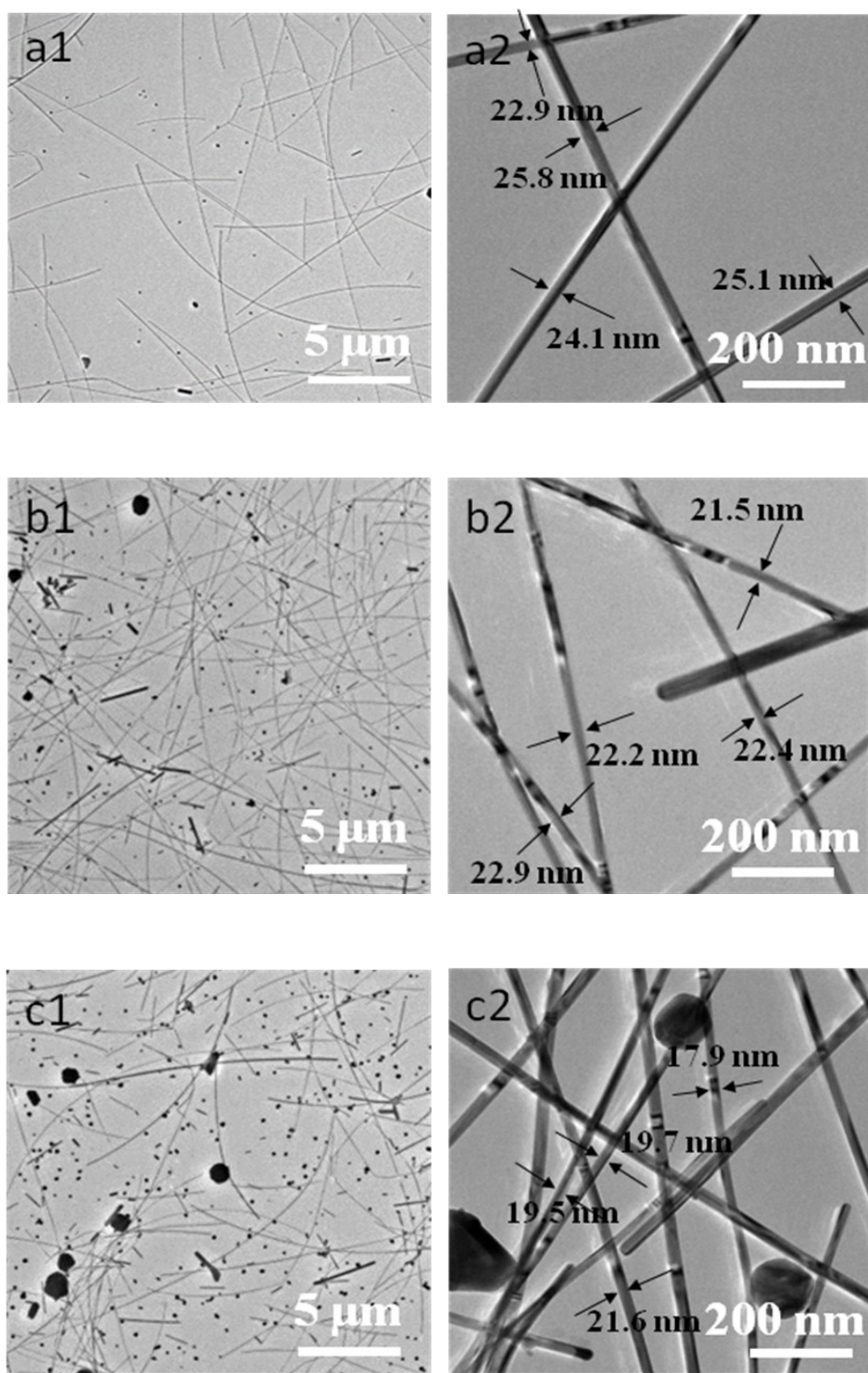


Fig. S6. TEM images of product. (a1) With the addition of 10 mL ethanol, (b1) without solvent addition, (c1) with the addition of 1 mL DI-water during the precursor mixing step.

Table S1. Average diameter, number, and total volume of particles as well as the volume ratio of large particles to small particles for the product produced during the precursor mixing step (2) without solvent addition, (3)–(5) with the addition of 0.5, 1, and 2 mL DI water, respectively. Particles were counted in an area of $6 \times 6 \mu\text{m}^2$.

Sample No.	Large Particles			Small Particles			Volume Ratio of Large Particles/Small Particles
	Average Diameter (nm)	Number	Total Volume (nm^3)	Average Diameter (nm)	Number	Total Volume (nm^3)	
2	302	11	1.59×10^8	98	81	3.99×10^7	3.98
3	553	27	2.39×10^9	131	196	2.31×10^8	10.35
4	643	18	2.50×10^9	113	57	4.31×10^7	58.01
5	688	35	5.97×10^9	123	99	9.64×10^7	61.92

Table S2. Binding energy fitting results for XPS spectra of particles produced during the precursor mixing step (a) with the addition of 10 mL

Product	Ag 3d (eV)				Cl 2p (eV)		Br 3d (eV)	
	5/2 (AgBr)	5/2 (AgCl)	3/2 (AgBr)	3/2 (AgCl)	3/2	1/2	5/2	3/2
1	367.4	367.8	373.5	373.8	197.8	199.5	68.2	69.1
2	367.4	367.8	373.4	373.8	197.7	199.3	68.2	69.1
3	367.2	367.5	373.2	373.7	197.7	199.3	68.1	69.1

ethanol, (b) without solvent addition, (c) with the addition of 1 mL DI-water.