

Supporting information

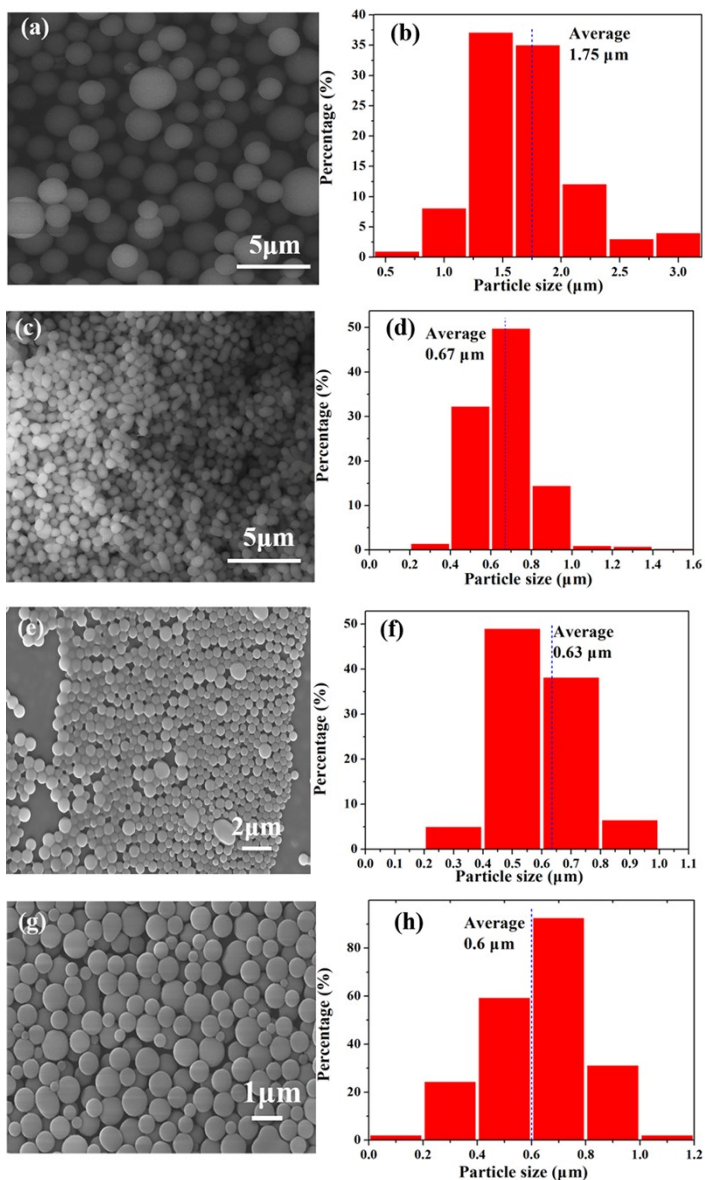
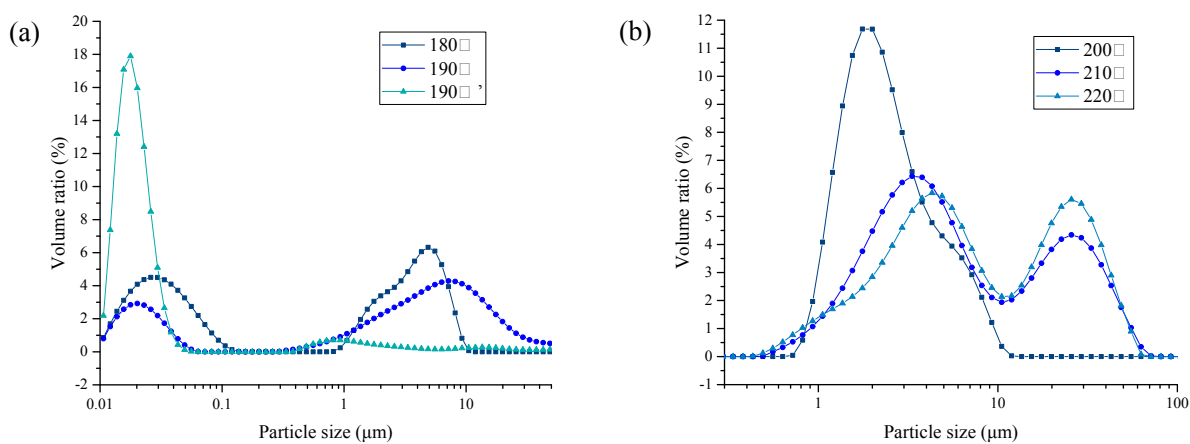


Fig. S1 SEM image of samples obtained at (a) 220 °C, (c) 210 °C, (e) 190 °C, (g) 180 °C and stereology particle size distribution of samples obtained at (b) 220 °C, (d) 210 °C, (f)



190 °C and (h) 180 °C.

Fig. S2 Laser diffraction particle size distribution of samples obtained at (a) 180 °C, 190 °C (b) 200 °C, 210 °C and 220 °C; The 190 °C' sample was tested in 1% v/v acetylacetone ethanol solution, while other samples were tested in pure ethanol.

Table. S1 Particle size distribution table of samples obtained at different temperature.

Sample name	Dx (10) (μm)	Dx (50) (μm)	Dx (90) (μm)
180 °C	0.019	1.617	5.971
190 °C	0.021	5.087	167.517
190 °C'	0.013	0.019	0.99
200 °C	1.253	2.223	5.569
210 °C	1.669	5.018	31.944
220 °C	1.717	6.555	33.211

Note: Dx(10), Dx(50) and Dx(90) is the particle size where the cumulative distribution percentage of the sample reaches 10%, 50% and 90%, and Dx(50) is usually used to indicate the average particle size of the powder.

Table. S2 XPS peak table of sample obtained by solvothermal method under 190 °C

Name	Peak value (eV)	FWHM (eV)	Atomic (%)
C1s	284.69	2.47	56.76
O1s	531.14	1.95	35.11
Cr2p	576.56	2.6	8.13

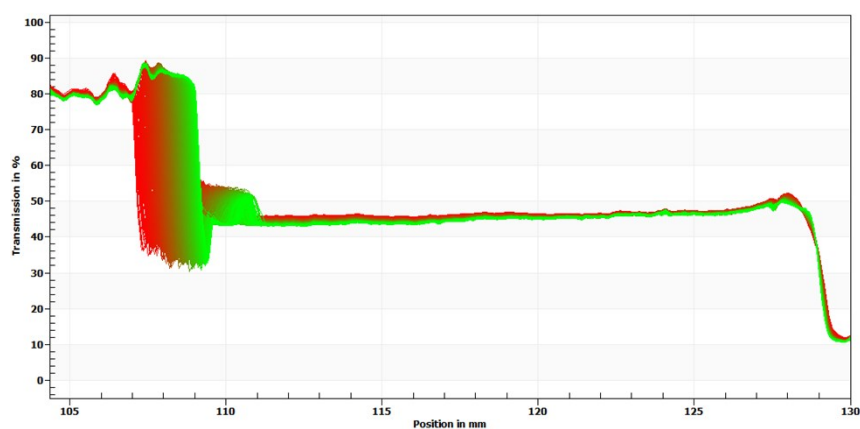


Fig. S3 Transmission vs. position profiles of samples obtained at 190 °C.

Fig. S4 Optical image of printed pattern on (a) PET with 1-6 times printing and (b) polyurethane layer coated nylon fabrics; (c) microscopy image of the yellow box in the previous image; (d) the SEM image of the ball-milled Cr₂O₃ particles.

