

Electronic Supplementary Information

Minute-made and low carbon fingerprint microwave synthesis of high quality templated mesoporous silica

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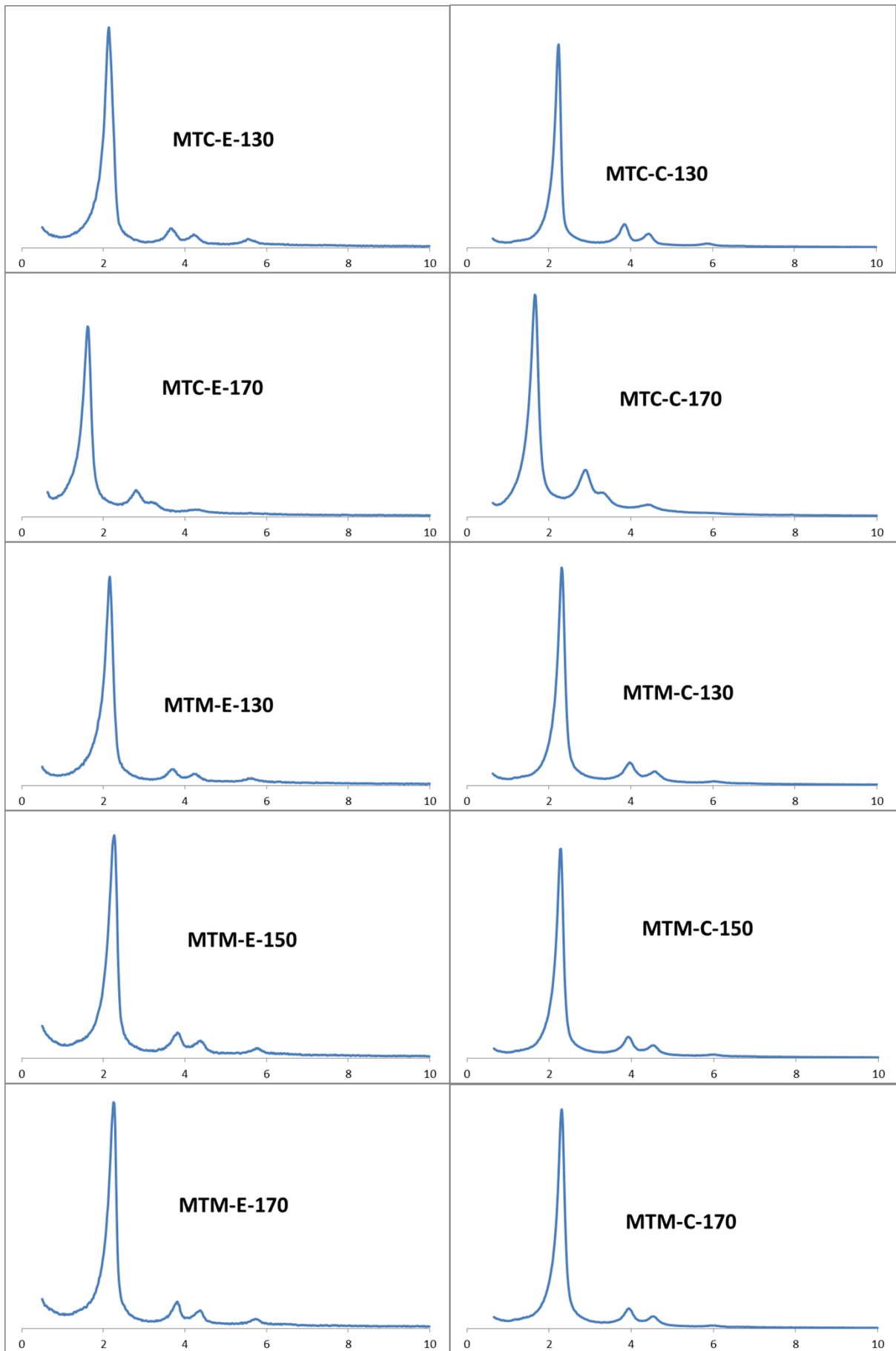
Table S1. Experimental conditions of the preliminary survey series of microwave syntheses.

Sample	addition ^a	Preliminary	Ramp t	Plateau		Cooling ^b	Total ^c (min)
		plateau	(min)	t	T	bath T	
		T (°C)/t (min)		(min)	(°C)	(°C)	
MTM-01	S	none	20	40	130	RT	240
MTM-02	F	60 /10	10	40	130	RT	180
MTM-03	F	60/10	10	20	130	RT	160
MTM-04	F	none	1	14	130	RT	125
MTM-05	F	none	1	9	130	I	80

a) S = Slow, drop wise addition followed by a 1 h stirring, F = Fast, addition on the edge of the beaker before putting the mixture in the autoclave, b) RT = Room Temperature, cooled at room temperature, I = Ice-bath, cooled in a ice-bath, c) Includes surfactant dissolution, heating and cooling before solid recovery.

Table S2. Q⁴ silicon proportion of selected silica materials.

Sample	δ (ppm) / Q ⁴ (%)
MTC-E-130	110.6 / 58.3
MTC-E-170	110.8 / 66.0
MTM-E-130	109.8 / 57.9
MTM-E-170	109.9 / 58.9



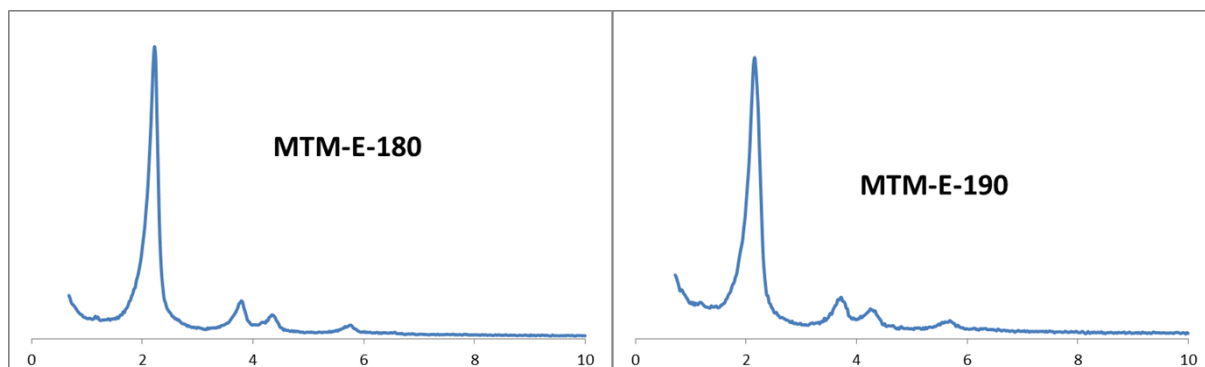


Figure S1. Diffraction patterns of several extracted silicas (x-axis is 2θ in degrees).

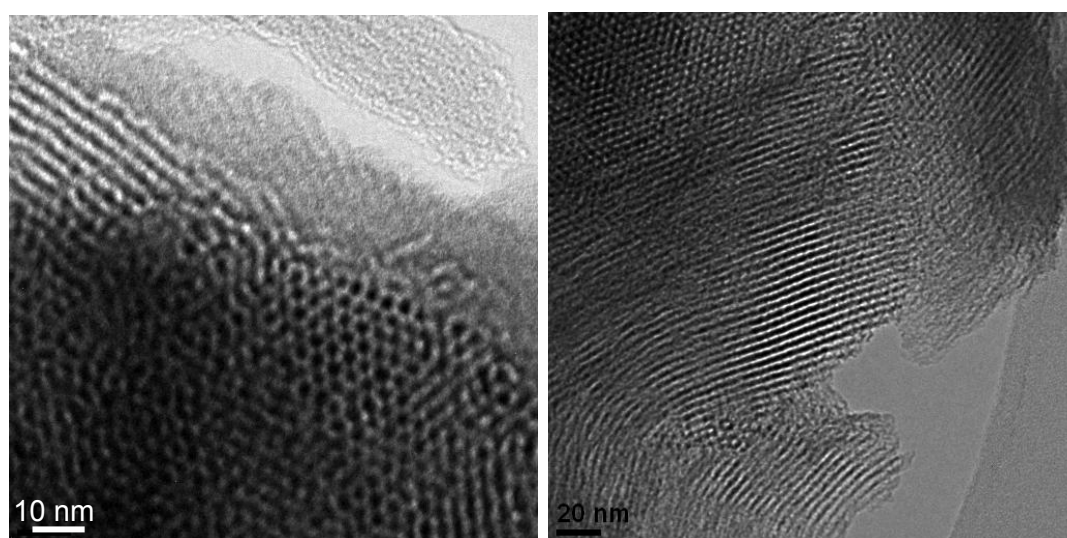


Figure S2. TEM pictures of MTM-01 silica.

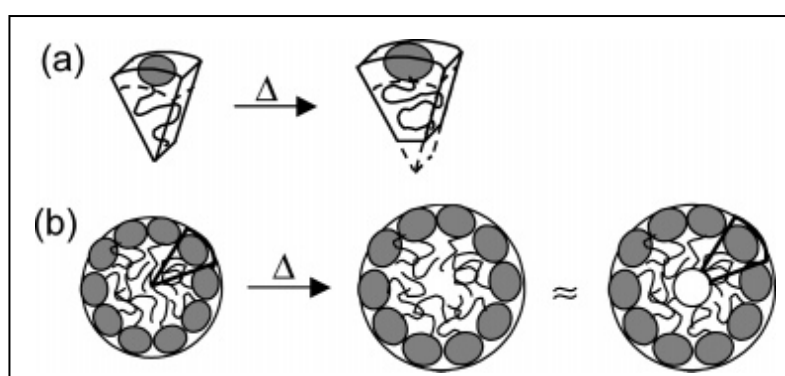


Figure S3. Thermal effect on micelle swelling using Israelachvili model according to Tolbert et al. *Langmuir* **2005**, *21*, 470: a) dynamic long chain longitudinal shortening and transversal broadening, b) effect on micelle size.

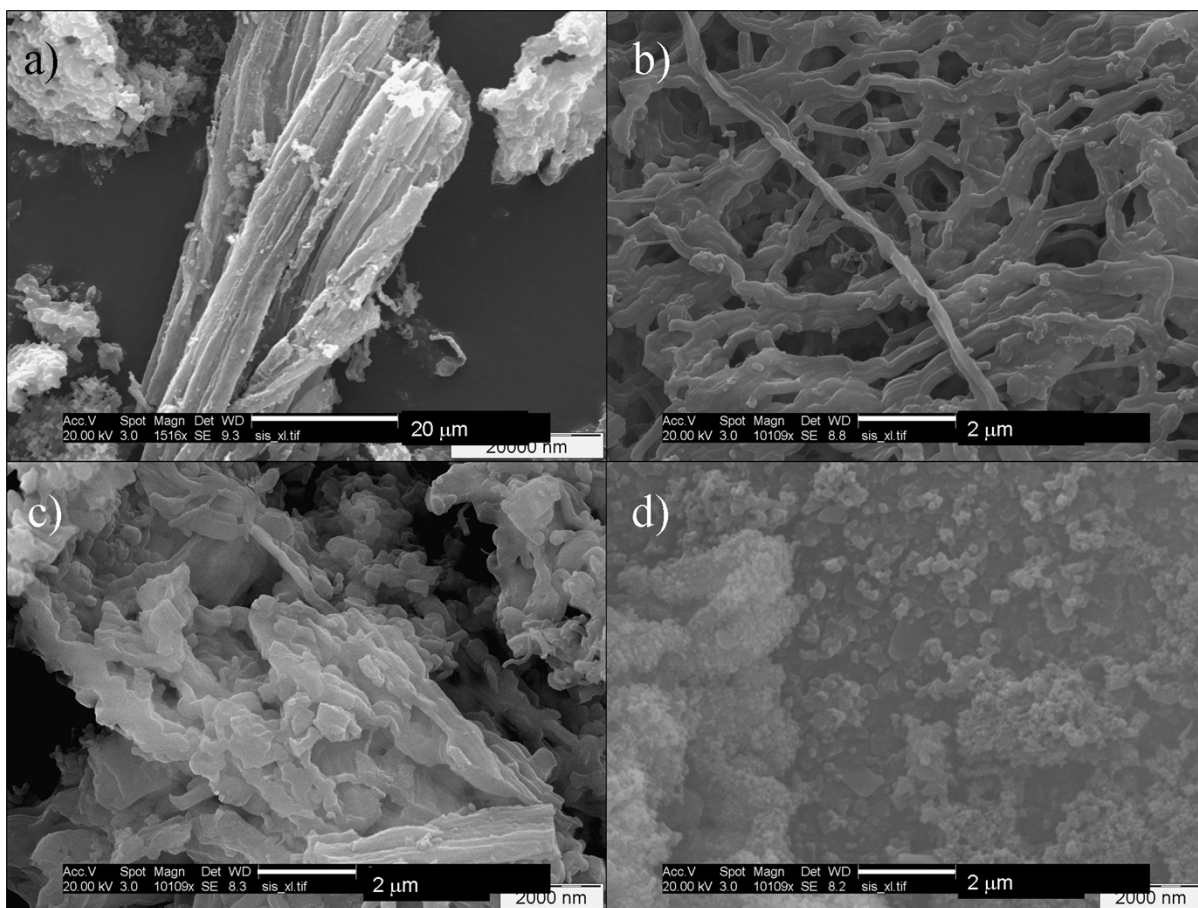


Figure S4. SEM pictures of MTC-130 (a), MTM-130 (b), MTM-150 (c) and MTM-170 (d).

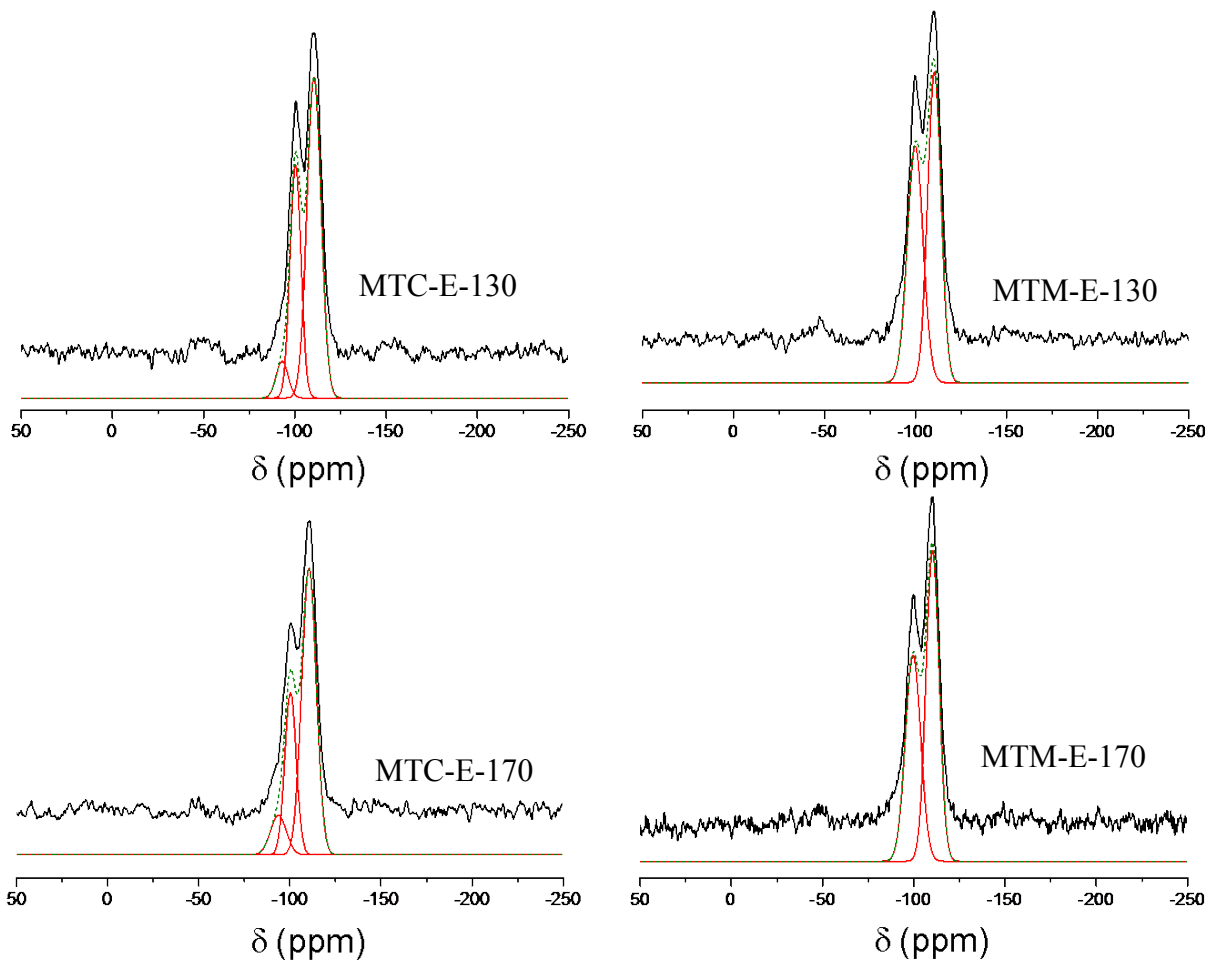


Figure S5. ^{29}Si HPDEC NMR spectra (black line), simulation (red line) and deconvolution (green dotted line) of classical and microwave materials. Q^2 percentage was omitted due to the lack of precision given by the fitting curve.

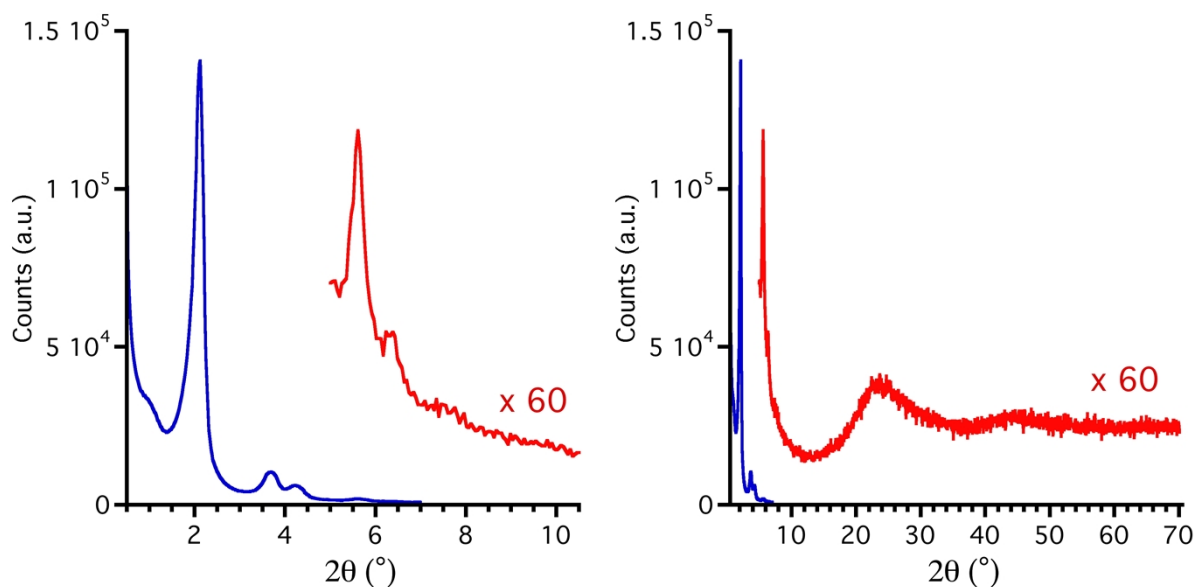


Figure S6. XRD Powder diagram of MTM-190-10 at low and large angles. The blue lines are at the scale given by the vertical axis and measured between 0.5 to 7° while the red lines are measured between 5 to 70° in 2θ and reported with an intensity multiplied by 60 . The narrow peak are diffraction due to the hexagonal phase as shown in Figure S1. The broad peak at 22° and 44° are typical of diffusion assigned to Si-Si distances in amorphous the SiO_2 phase of the channel wall.