Supplementary Material (ESI) for Journal of Materials Chemistry

Formation of Al-rich nanocrystalline ZSM-5 via chloride-mediated, abrupt, atypical amorphous-to- crystalline transformation

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SUPPORTING INFORMATION

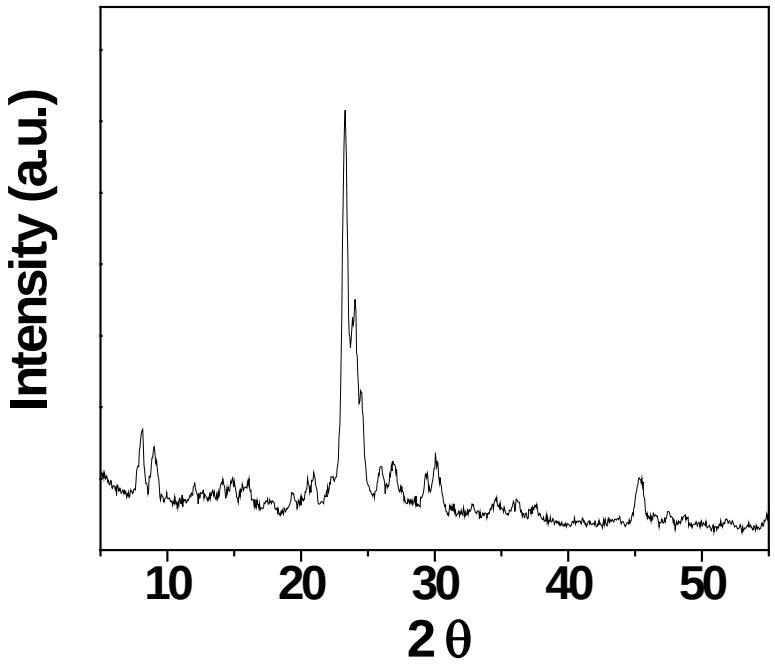

Figure S1. XRD of Z-OH-4/24

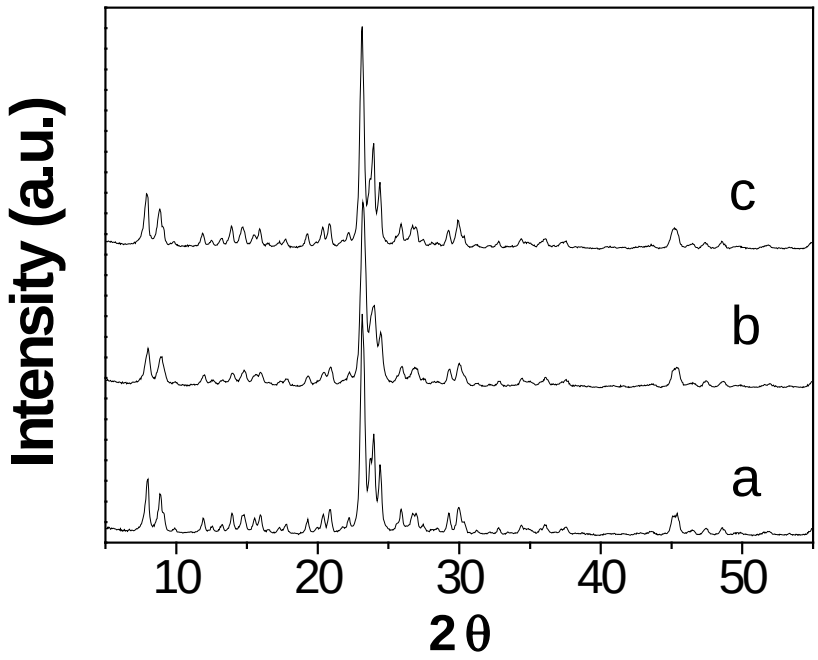

Figure S2. XRD of (a) Z-Cl-1/24 sedimented at 3000rpm; (b) Z-Cl-4/24 sedimented at 3000 rpm and (c) supernatant of sample (b) spun down at 10,500 rpm.

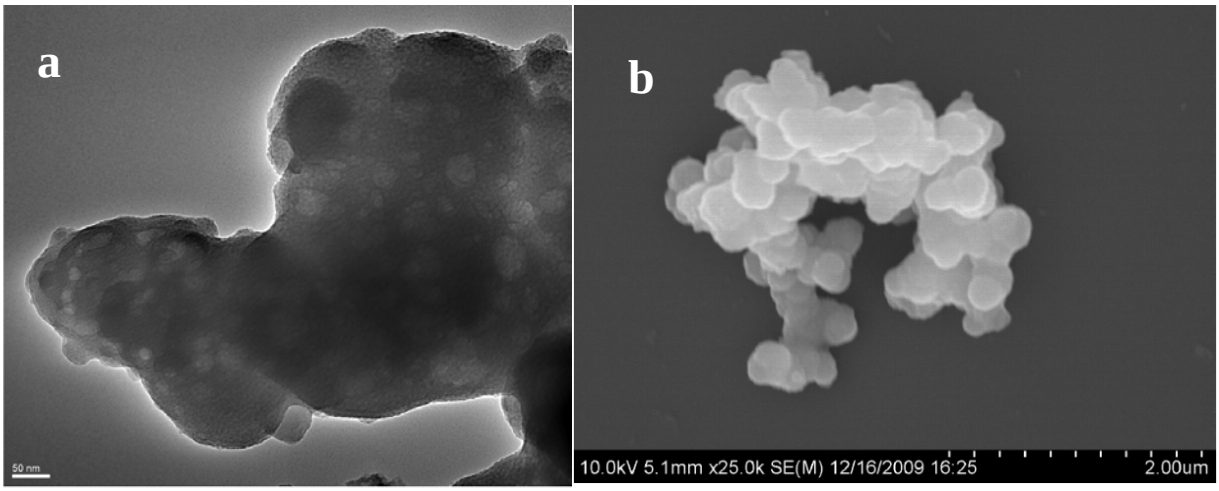

Figure S3. (a) TEM of Z-Cl-1.5; scale bare =50 nm and (b) SEM of Z-Cl-1.5; scale bar=2μm.

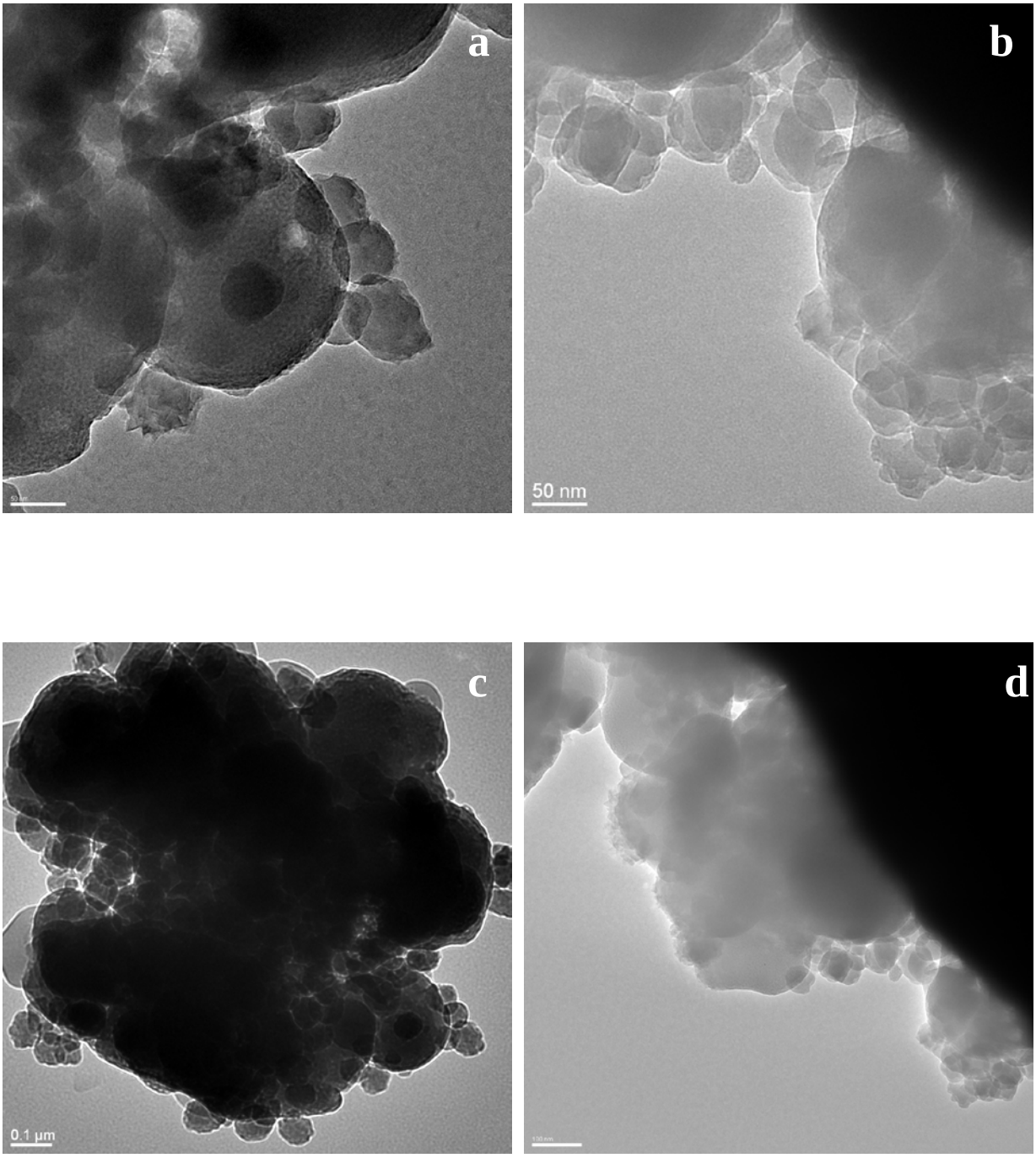

Figure S4. TEM images of Z-2-1.75. The scale bars of S5a and b are 50nm and that of S5c and d are 100 nm.

Table S1

Sample	*Surface Area (m^2/g)*			*XRD Primary crystal Size (nm)*	*Calculated Primary crystal Size* [a] *(nm)*
	As synthesized	*Calcined*	*External Surface area of calcined sample from t-plot*		
Z-OH-4/24	100	349	157	63	32
Z-Cl-1/24	46	421	132	51	70
Z-Cl-2/24	51	436	138	46	63
Z-Cl-4/24[d]	62	445	144	51	51
Z-Cl-2	58	438	90	61	55

a: Primary crystal size, *X*, was calculated using the model of Song et. al. [1] that was developed assuming a cubic crystal shape.

Crystal size *X* (nm) = 3214/ S_{ext} (m^2/g)

1. Song, W.; Justice, R. E.; Jones, C. A.; Grassian, V. H.; Larsen, S. C., Size-dependent properties of nanocrystalline silicalite synthesized with systematically varied crystal sizes. *Langmuir* **2004,** 20, (11), 4696-702.