

Revision 1

SUPPLEMENTARY MATERIALS

Table S1. Indexed peaks of the XRD pattern.

Unknown phase I			Unknown phase II		
2θ (deg.)	d (Å)	I/I_0	2θ (deg.)	d (Å)	I/I_0
23.67	3.729	11	23.88	3.696	100
35.46	2.489	50	34.64	2.548	36
37.86	2.331	3	36.92	2.391	19
38.48	2.294	8	37.95	2.326	1
43.71	2.019	53	38.42	2.297	2
44.03	2.005	100	43.55	2.027	31
45.14	1.955	9	43.99	2.007	13
57.75	1.528	17	44.45	1.986	18
58.22	1.516	57	47.34	1.865	2
60.75	1.453	30	50.9	1.734	2
62.14	1.420	2	60.89	1.450	17

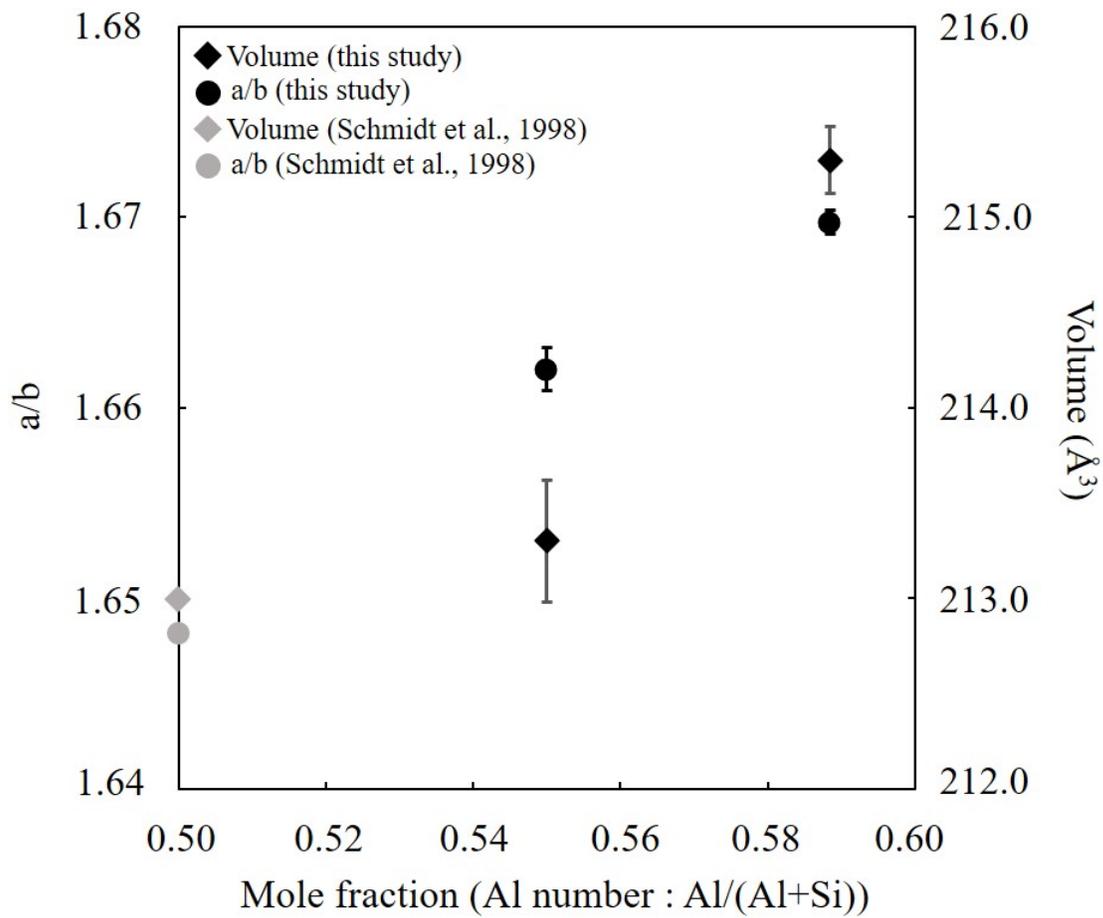


Figure S1: a/b axial ratio and unit cell volumes (V/Z) of phase egg under ambient conditions as a function of Al number. Z , the number of formula units.

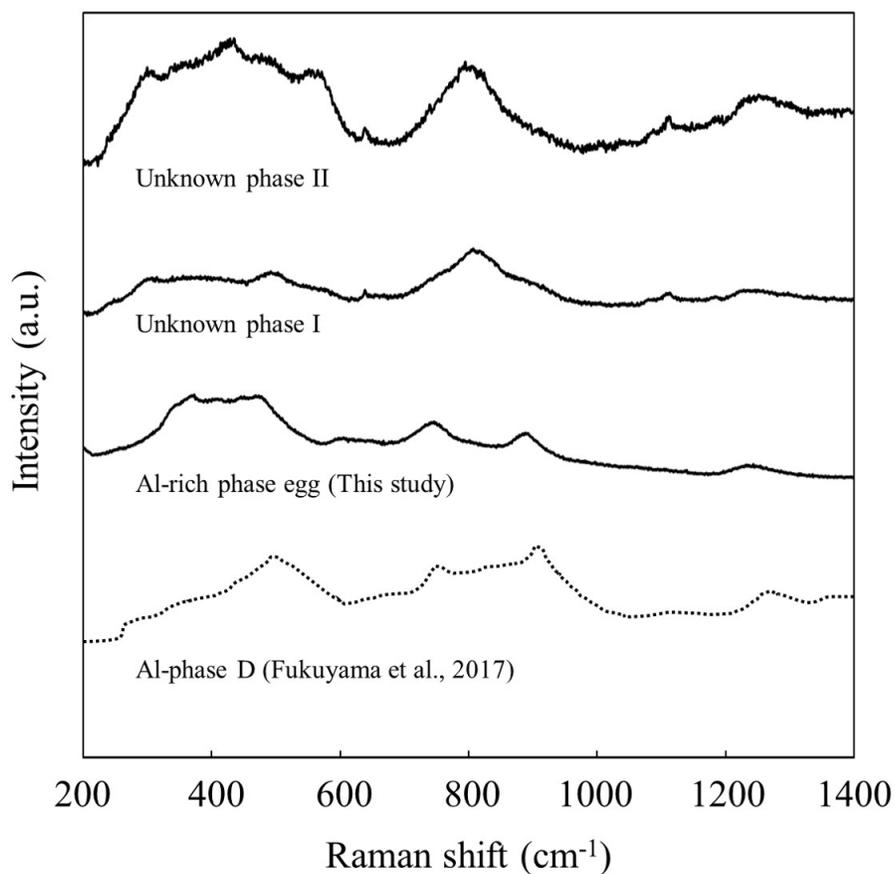


Figure S2: Raman spectrum of the Al-rich phase egg, unknown phase I and unknown phase II with a composition of $\text{Al}_{1.18}\text{Si}_{0.82}\text{O}_4\text{H}_{1.18}$ (OS3558), $\text{Al}_{2.03}\text{Si}_{0.97}\text{O}_6\text{H}_{2.03}$ (OS3582) and $\text{Al}_{2.11}\text{Si}_{0.88}\text{O}_6\text{H}_{2.11}$ (OS3582). The trace of raman spectrum of the aluminous phase D reported by Fukuyama et al. (2017) is shown for comparison.

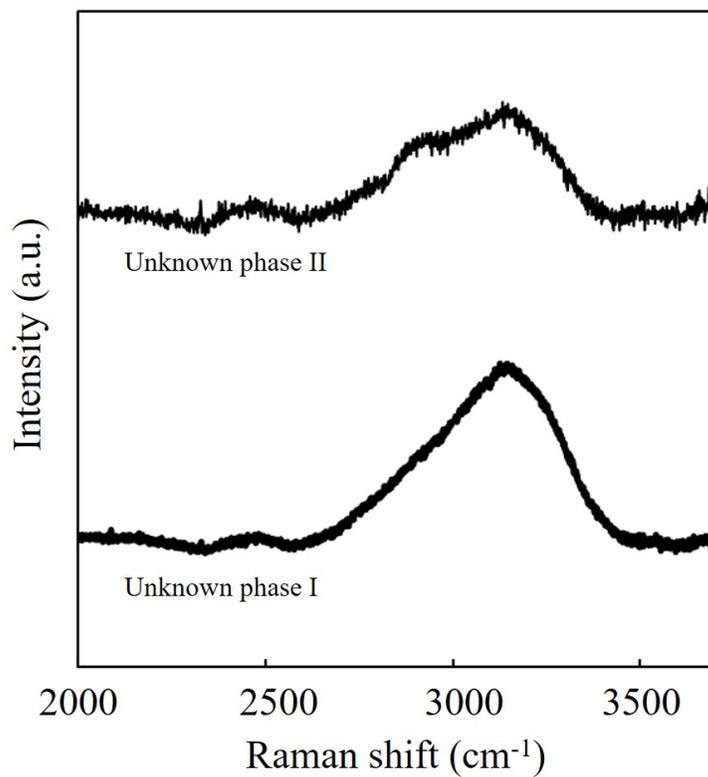


Figure S3: Raman spectrum of the unknown phase I and II with compositions of $\text{Al}_{2.03}\text{Si}_{0.97}\text{O}_6\text{H}_{2.03}$ and $\text{Al}_{2.11}\text{Si}_{0.88}\text{O}_6\text{H}_{2.11}$ in the range 2000 - 3700 cm^{-1} . A broad peak was observed at 2600-3500 cm^{-1} .