Electronic Supplemental Information for

Ligands and media impact interactions between engineered nanomaterials and clay minerals

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Abbreviations
DI – deionized (water)
NaCl – 4.7 mM NaCl
MHRW – moderately hard reconstituted water (standard EPA freshwater)
kaol – kaolinite
mont – montmorillonite
m – molality
SI: saturation index

Table 1. Water chemistry and ion speciation modeling using PHREEQC.

	Stock soln	CdSe	kaol	Na-mont	Ca-mont	CdSe + kaol	CdSe + Na-mont	CdSe + Ca-mont
DIW								
pH	5.65	5.65	5.76	6.47	6.35	5.77	6.47	6.35
pe	15.2	15.2	15.1	14.4	14.5	15.1	14.4	14.5
IS (m*m*)	0.00	0.95	0.00	0.04	0.03	0.09	0.98	0.97
SI: CdSe		-72.00				-72	-72	
% Cd species								
Cd^{2+}		97				97	97	97
$CdCl^{+}$								
$CdCO_3$								
$CdSO_4$								
$CdSeO_4$		3				3	3	3
$CdHCO^{3+}$								
% Se species								
SeO_4^{2-} (Se(6))		97				97	97	97
$CdSeO_4$		3				3	3	3
NaCl (saline)								
pH	5.65	5.65	5.77	6.33	6.36	5.769	6.33	6.36
pe	15.2	15.2	15.1	14.5	14.5	15.1	14.5	14.5
IS (m*m*)	4.70	5.54	4.71	4.73	4.73	5.54	5.39	5.39
SI: CdSe		-73.00				-73	-72	
% Cd species								
Cd^{2+}		74				74	37	37
$CdCl^{+}$		24				24	61	61
$CdCO_3$								
$CdSO_4$								
$CdSeO_4$		2				2	1	1
$CdHCO^{3+}$								
$CdCl_2$							1	1
% Se species								
SeO_4^{2-} (Se(6))		98				98	99	99
$CdSeO_4$		2				2	1	1

Table 1 (*cont.*). Water chemistry and ion speciation modeling using PHREEQC.

	Stock soln	CdSe	kaol	Na-mont	Ca-mont	CdSe + kaol	CdSe + Na-mont	CdSe + Ca-mont
MHRW								
pH	8.31	8.29	8.31	8.32	8.32	8.28	8.31	8.31
pe	12.6	12.6	12.6	12.5	12.5	12.6	12.5	12.5
IS (m*m*)	4.29	5.11	4.29	4.28	4.28	5.11	5.22	5.22
SI: CdSe		-73.00				-73	-72	-72
% Cd species								
Cd^{2+}		78				79	92	92
$CdCl^{+}$							2	2
$CdCO_3$		11				11		
$CdSO_4$		7				7		
$CdSeO_4$		2				2	2	2
$CdHCO^{3+}$								2
$CdCl_2$							1	1
% Se species								
SeO_4^{2-} (Se(6))		98				98	98	98
$CdSeO_4$		2				2	2	2
% Ca species								
Ca^{2+}	89	90	89	92	92	90	92	92
$CaSO_4$	9	8	9	6	6	8	6	6
$CaHCO^{3+}$	1	1	1			1	1	1
$CaCO_3$				1	1	1	1	1
% Mg species								
Mg^{2+}	91	92	92	89	89	92	89	89
$MgSO_4$	7	7	7	10	10	7	9	9

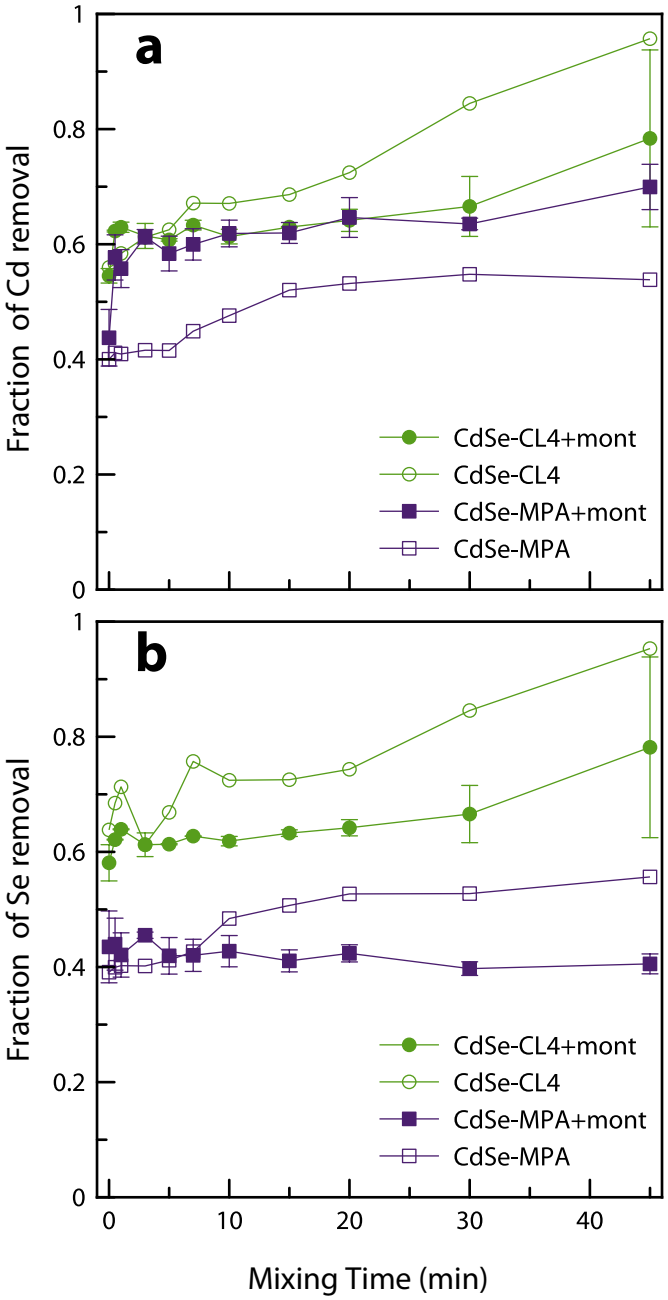

Figure S1. Removal kinetics comparison between experiments in 4.7 mM NaCl with and without montmorillonite present. Data presented for clay experiments are means ± standard deviations from triplicate experiments.