

Table S1. Final pH and solubility data of Toolse 1.

Experiment nr.	HCl (M)	Sample mass (g)	Mixing rate (rpm)	HCl/Ca (mole ratio)	final pH	P	F	Mg	Fe	REE
	x1	x2	x3			Solubility (%)				
						y1	y2	Y3	Y4	Y5
RT4	0.491	125	550	0.79	2.05	44.4	4.67	26.69	3.40	0.18
RT7	0.491	125	450	0.79		42.2	5.54	23.81	3.85	0.19
RT5	0.491	75	550	1.31	1.88	73.4	10.67	40.39	6.17	0.19
RT6	0.491	75	650	1.31		70.9	11.17	41.25	6.26	0.20
RT13	0.491	45	350	2.22	1.30	101.7	70.84	66.30	15.62	0.47
RT1	1.01	97	550	2.08	1.1	99.8	13.89	64.74	12.73	0.39
RT8	1.01	97	450	2.08		94.8	17.36	57.75	9.93	0.49
RT9	1.01	97	650	2.08		98.2	15.77	59.02	10.08	0.44
RT15	1.01	100	650	2.00	1.06	95.9	18.88	66.55	12.61	0.50
RT2	1.43	125	550	2.29	0.70	97.0	16.09	69.84	15.70	0.78
Rt11	1.43	125	650	2.29	0.80	95.2	19.30	69.34	12.48	1.25
RT3	1.43	75	550	3.81		99.5	84.90	86.42	22.01	37.58
RT10	1.43	75	450	3.81		96.6	90.23	77.19	20.80	32.57