

Name Recycled concrete aggregate for Lite
pH Dependent Leaching Test Scenario



Lab Test

Extra L/S Simulation

Lab Test

Model Parameters		
Entity	Unit	Default
c0		-6.447
c1		-0.9394
c2		0.3453
c3		-0.05214
c4		0.003399
c5		-7.968E-05
Clay	mg/kg	300.0
Hydrous Ferric Oxid	mg/kg	182.0
L/S	L/kg	10.02
pE		3.300
pH		11.94
Solid Humic Acid	mg/kg	100.0
Extra L/S Simulation	L/kg	0.4000

Available Content

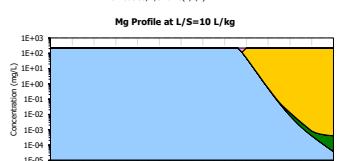
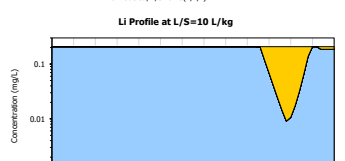
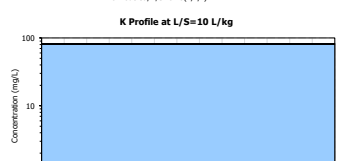
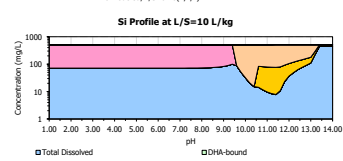
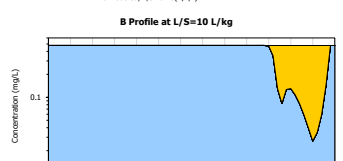
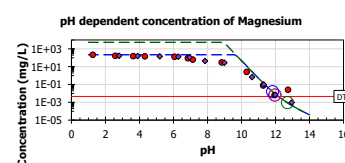
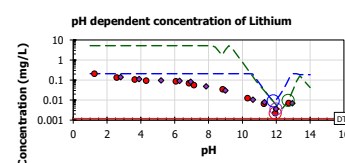
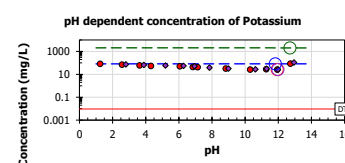
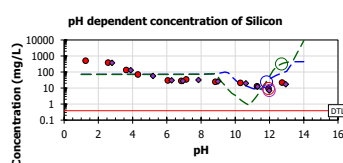
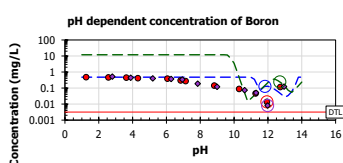
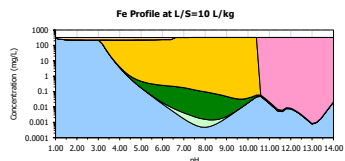
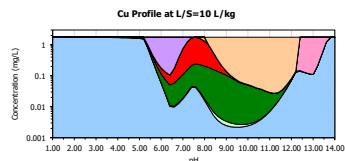
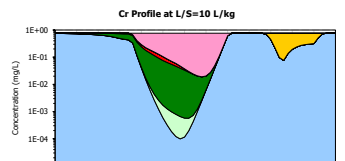
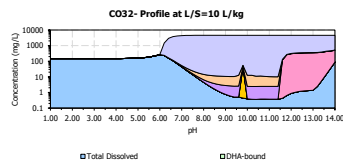
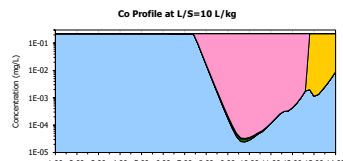
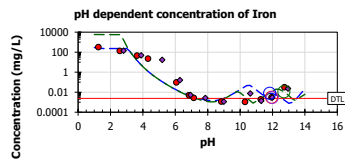
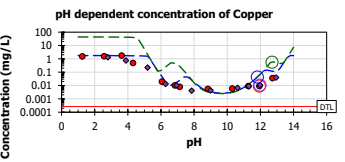
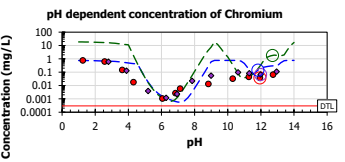
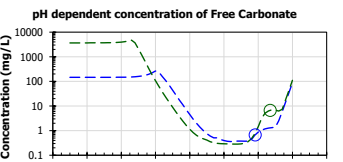
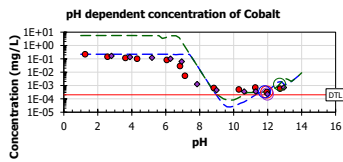
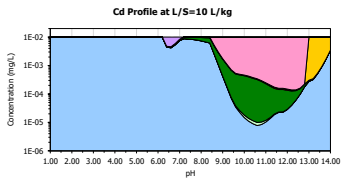
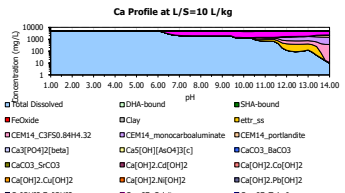
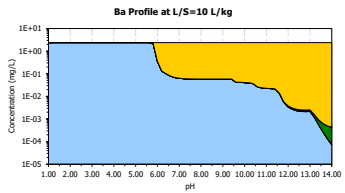
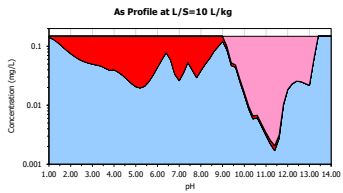
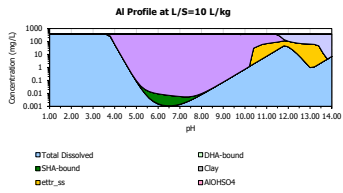
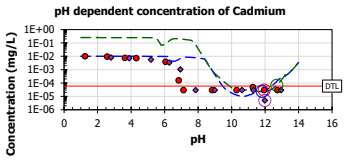
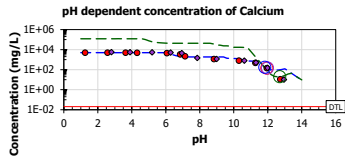
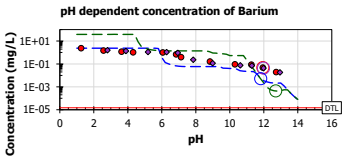
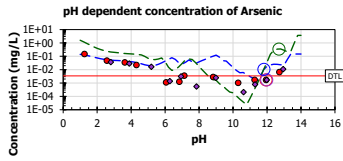
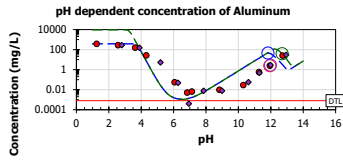
Entity	Unit	Default	Entity	Unit	Default	Entity	Unit	Default
Al	mg/kg	3786	B	mg/kg	4.786	Sb	mg/kg	0.06358
As	mg/kg	1.483	Si	mg/kg	5126	Se	mg/kg	0.3946
Ba	mg/kg	23.92	Hg	mg/kg	2.006E-07	Sn	mg/kg	0.08238
Br	mg/kg	7.990E-08	K	mg/kg	819.9	SO4	mg/kg	3610
Ca	mg/kg	5.014E+04	Li	mg/kg	2.082	Sr	mg/kg	112.2
Cd	mg/kg	0.1005	Mg	mg/kg	2187	Th	mg/kg	2.320E-07
Cl	mg/kg	3.545E-08	Mn	mg/kg	196.3	U	mg/kg	2.380E-07
Co	mg/kg	2.218	Mo	mg/kg	0.3309	V	mg/kg	5.751
CO32-	mg/kg	4.570E+04	Na	mg/kg	374.3	Zn	mg/kg	84.03
Cr	mg/kg	7.638	Ni	mg/kg	6.615			
Cu	mg/kg	17.60	NO3	mg/kg	6.200E-08			
F	mg/kg	1.900E-08	Pb	mg/kg	10.66			
Fe	mg/kg	3277	PO4	mg/kg	1659			

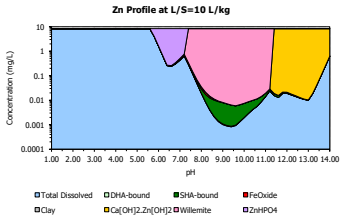
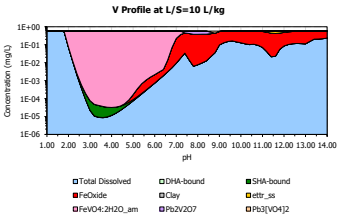
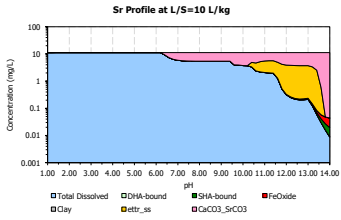
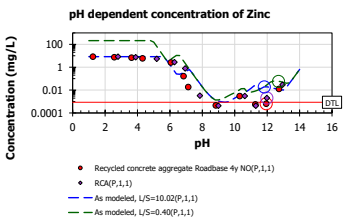
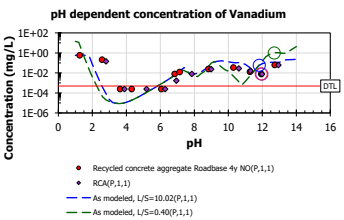
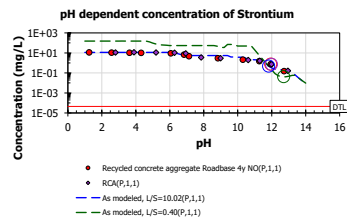
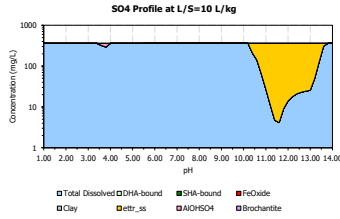
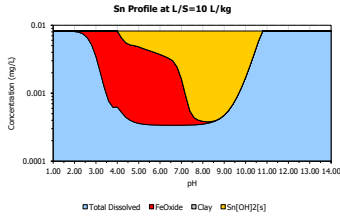
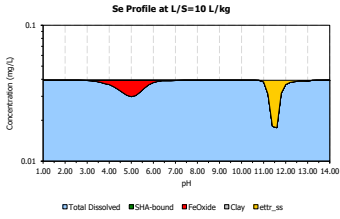
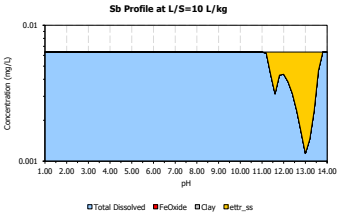
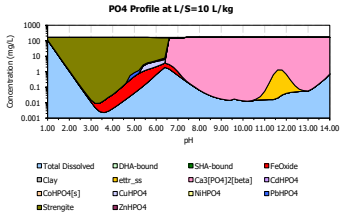
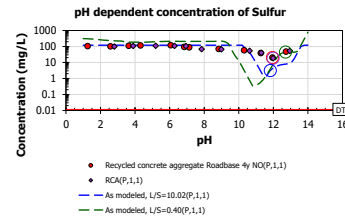
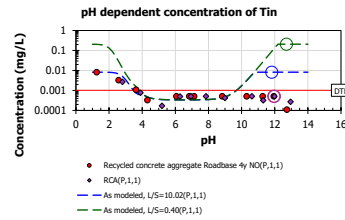
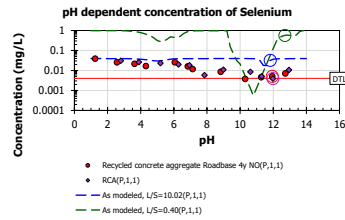
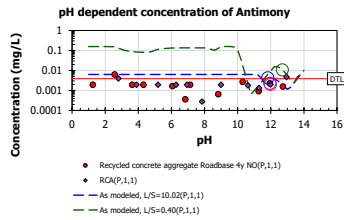
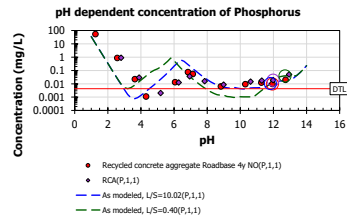
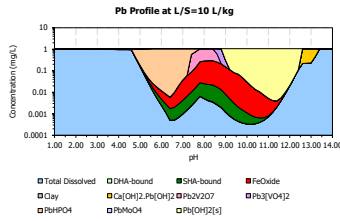
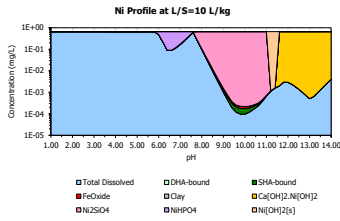
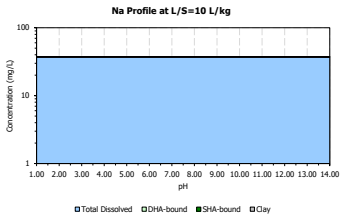
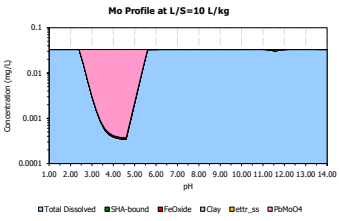
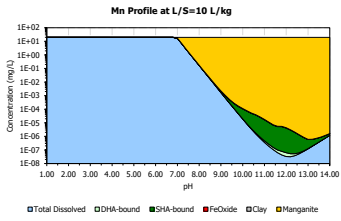
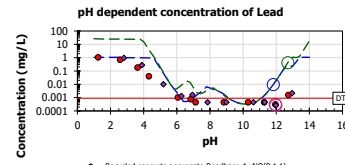
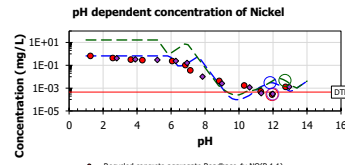
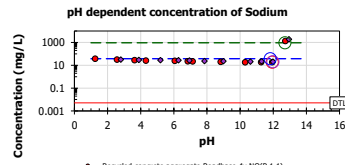
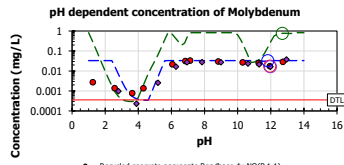
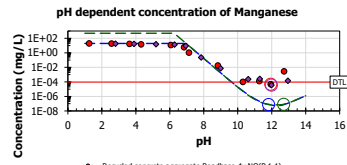
Solid Solutions

Name	End Member	Log(K) Reaction
ettr_ss	AsO4_Ettringite_ss	26.79 AsO4_Ettringite_ss + 1 H+ + 8 H2O -> 2 Al[OH]4- + 3 AsO4-3 + 6 Ca+2 + 1 ettr_ss
	Ba_Ettringite_ss	4.008 Ba_Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ba+2 + 3 SO4-2 + 1 ettr_ss
	BO3_Ettringite_ss	-46.87 BO3_Ettringite_ss + 7 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 H2BO3- + 1 ettr_ss
	CrO4_Ettringite_ss	-8.592 CrO4_Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 CrO4-2 + 1 ettr_ss
	Ettringite_ss	-10.99 Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 SO4-2 + 1 ettr_ss
	Fe_Ettringite_ss	-49.51 Fe_Ettringite_ss + 4 H+ + 8 H2O -> 6 Ca+2 + 2 Fe[OH]4- + 3 SO4-2 + 1 ettr_ss
	MoO4_Ettringite_ss	-9.592 MoO4_Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 MoO4-2 + 1 ettr_ss
	PO4_Ettringite_ss	39.10 PO4_Ettringite_ss + 1 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 PO4-3 + 1 ettr_ss
	Sb[OH]6-_Ettringite	-33.80 Sb[OH]6-_Ettringite_ss + 7 H+ + 17 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 Sb[OH]6- + 1 ettr_ss
	SeO4-2_Ettringite_s	-8.592 SeO4-2_Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 SeO4-2 + 1 ettr_ss
	Sr_Ettringite_ss	4.008 Sr_Ettringite_ss + 4 H+ + 8 H2O -> 2 Al[OH]4- + 3 SO4-2 + 6 Sr+2 + 1 ettr_ss
	VO3_Ettringite_ss	-53.79 VO3_Ettringite_ss + 13 H+ + 2 H2O -> 2 Al[OH]4- + 6 Ca+2 + 3 VO2+ + 1 ettr_ss

Minerals

Name	> 1E-13 mol/kg	Log(K)	Reaction	Name	> 1E-13 mol/kg	Log(K)	Reaction
AA_Fe[OH]3[am]	Yes	16.60	AA_Fe[OH]3[am] + 1 H2O -> 1 Fe[OH]4- + 1 H+	CEM14_monocarboaluminate	Yes	-24.52	CEM14_monocarboaluminate + 4 H+ -> 2 Al[OH]4- + 1 CO3-2 + 4 Ca+2 + 9 H2O
AlOHSO4	Yes	25.92	AlOHSO4 + 3 H2O -> 1 Al[OH]4- + 3 H+ + 1 SO4-2	CEM14_portlandite	Yes	-22.79	CEM14_portlandite + 2 H+ -> 1 Ca+2 + 2.5 H2O
BaSrSO4[50%Ba]	Yes	8.221	BaSrSO4[50%Ba] -> 0.5 Ba+2 + 1 SO4-2 + 0.5 Sr+2	CEM14_SiO2[min]	Yes	24.21	CEM14_SiO2[min] + 2 H2O -> 2 H+ + 1 H2SiO4-2
Brochantite	Yes	-15.22	Brochantite + 6 H+ -> 4 Cu+2 + 6 H2O + 1 SO4-2	Co2SiO4	Yes	6.289	Co2SiO4 + 2 H+ -> 2 Co+2 + 1 H2SiO4-2
Ca[OH]2.Cd[OH]2	Yes	-34.00	Ca[OH]2.Cd[OH]2 + 4 H+ -> 1 Ca+2 + 1 Cd+2 + 4 H2O	CoHP04[4s]	Yes	24.48	CoHP04[4s] -> 1 Co+2 + 1 H+ + 1 PO4-3
Ca[OH]2.Co[OH]2	Yes	-33.22	Ca[OH]2.Co[OH]2 + 4 H+ -> 1 Ca+2 + 1 Co+2 + 4 H2O	Cu[OH]2[2s]	Yes	-8.674	Cu[OH]2[2s] + 2 H+ -> 1 Cu+2 + 2 H2O
Ca[OH]2.Cu[OH]2	Yes	-30.00	Ca[OH]2.Cu[OH]2 + 4 H+ -> 1 Ca+2 + 1 Cu+2 + 4 H2O	CuHP04	Yes	26.00	CuHP04 -> 1 Cu+2 + 1 H+ + 1 PO4-3
Ca[OH]2.Ni[OH]2	Yes	-31.52	Ca[OH]2.Ni[OH]2 + 4 H+ -> 1 Ca+2 + 4 H2O + 1 Ni+2	Eskolaite	Yes	139.5	Eskolaite + 5 H2O -> 2 CrO4-2 + 10 H+ + 6 e-
Ca[OH]2.Pb[OH]2	Yes	-30.00	Ca[OH]2.Pb[OH]2 + 4 H+ -> 1 Ca+2 + 4 H2O + 1 Pb+2	FeVO4:2H2O_am	Yes	23.48	FeVO4:2H2O_am + 2 H2O -> 1 Fe[OH]4- + 1 VO2+
Ca[OH]2.Zn[OH]2	Yes	-30.52	Ca[OH]2.Zn[OH]2 + 4 H+ -> 1 Ca+2 + 4 H2O + 1 Zn+2	Li2_CaO_Al2O3_SiO2_8H2O[s]	Yes	24.20	Li2_CaO_Al2O3_SiO2_8H2O[s] -> 2 Al[OH]4- + 1 Ca+2 + 3 H2O + 1 H2SiO4-2 + 2 Li+
Ca3[PO4]2[beta]	Yes	28.92	Ca3[PO4]2[beta] -> 3 Ca+2 + 2 PO4-3	Manganite	Yes	-25.27	Manganite + 3 H+ + 1 e- -> 2 H2O + 1 Mn+2
Ca5[OH][AsO4]3[c]	Yes	26.13	Ca5[OH][AsO4]3[c] + 1 H+ -> 3 AsO4-3 + 5 Ca+2 + 1 H2O	Ni[OH]2[2s]	Yes	-10.80	Ni[OH]2[2s] + 2 H+ -> 2 H2O + 1 Ni+2
CaCO3_BaCO3	Yes	22.00	CaCO3_BaCO3 -> 1 Ba+2 + 2 CO3-2 + 1 Ca+2	Ni2SiO4	Yes	5.062	Ni2SiO4 + 2 H+ -> 1 H2SiO4-2 + 2 Ni+2
CaCO3_SrCO3	Yes	19.85	CaCO3_SrCO3 -> 2 CO3-2 + 1 Ca+2 + 1 Sr+2	NiHP04	Yes	25.00	NiHP04 -> 1 H+ + 1 Ni+2 + 1 PO4-3
CaSb[OH]6[s]2	Yes	18.41	CaSb[OH]6[s]2 + 6 H2O -> 1 Ca+2 + 2 Sb[OH]6-	Pb[OH]2[5]	Yes	-8.150	Pb[OH]2[5] + 2 H+ -> 2 H2O + 1 Pb+2
CaSrSO4[25%Sr]	Yes	5.392	CaSrSO4[25%Sr] -> 0.75 Ca+2 + 1 SO4-2 + 0.25 Sr+2	Pb2VO7	Yes	1.900	Pb2VO7 + 6 H+ -> 3 H2O + 2 Pb+2 + 2 VO2+
Cd2SiO4	Yes	6.059	Cd2SiO4 + 2 H+ -> 2 Cd+2 + 1 H2SiO4-2	Pb3[SbO3]2[s]	Yes	32.89	Pb3[SbO3]2[s] + 3 H+ + 7 H2O -> 3 Pb+2 + 2 Sb[OH]6- + 2 e-
CdHP04	Yes	26.48	CdHP04 -> 1 Cd+2 + 1 H+ + 1 PO4-3	Pb3[VO4]2	Yes	-6.140	Pb3[VO4]2 + 8 H+ -> 4 H2O + 3 Pb+2 + 2 VO2+
Cem07_Calcite	Yes	8.485	Cem07_Calcite -> 1 CO3-2 + 1 Ca+2	PbHP04	Yes	28.00	PbHP04 -> 1 H+ + 1 PO4-3 + 1 Pb+2
Cem07_Tob_I	Yes	23.87	Cem07_Tob_I -> 2 Ca+2 + 0.8 H+ + 1.2 H2O + 2.4 H2SiO4-2	PbMoO4	Yes	15.62	PbMoO4 -> 1 MoO4-2 + 1 Pb+2
CEM14_Al[OH]3[mii]	Yes	14.67	CEM14_Al[OH]3[mic] + 1 H2O -> 1 Al[OH]4- + 1 H+	Sn[OH]2[2s]	Yes	1.447	Sn[OH]2[2s] + 2 H+ -> 2 H2O + 1 Sn+2
CEM14_Brucite	Yes	-16.84	CEM14_Brucite + 2 H+ -> 2 H2O + 1 Mg+2	Spodumene2	Yes	58.00	Spodumene2 + 6 H2O -> 1 Al[OH]4- + 4 H+ + 2 H2SiO4-2 + 1 Li+
CEM14_C3FS0.84H4	Yes	-1.915	CEM14_C3FS0.84H4.32 + 2.32 H+ -> 3 Ca+2 + 2 Fe[OH]4- + 5.68 H2O + 0.84 H2SiO4-2	Strengite	Yes	47.99	Strengite + 2 H2O -> 1 Fe[OH]4- + 4 H+ + 1 PO4-3
CEM14_gypsum	Yes	4.581	CEM14_gypsum -> 1 Ca+2 + 2 H2O + 1 SO4-2	Willemite	Yes	6.289	Willemite + 2 H+ -> 1 H2SiO4-2 + 2 Zn+2
CEM14_M6ACH13	Yes	-22.70	CEM14_M6ACH13 + 4 H+ -> 1 Al[OH]4- + 0.5 CO3-2 + 6.5 H2O + 3 Mg+2	ZnHP04	Yes	24.48	ZnHP04 -> 1 H+ + 1 PO4-3 + 1 Zn+2





Sample Name Recycled concrete aggregate Roadbase 4y NO(A,P,A)

Residual details, concentrations

		Residuals as log(model/sample)									
Fraction		1	2	3	4	5	6	7	8	9	10
pH		1.25	2.57	3.63	4.31	6.06	6.84	7.13	8.83	10.3	11.3
Al		0.00	0.13	0.34	-0.56	-1.57	-0.61	-0.58	0.72	1.71	1.38
As		-0.07	0.07	0.08	0.18	1.63	1.40	0.95	1.56	0.84	0.07
B		0.00	0.02	0.03	0.06	0.09	0.20	0.25	0.53	0.74	0.73
Ba		0.00	0.21	0.31	0.37	-0.58	-1.01	-0.81	-0.44	-0.38	-0.60
Br		-	-	-	-	-	-	-	-	-	-
Ca		0.00	0.00	0.00	0.02	0.03	-0.19	-0.05	0.21	0.18	0.16
Cd		0.00	0.02	0.11	0.14	0.40	1.55	2.45	1.49	-0.37	-0.48
Cl		-	-	-	-	-	-	-	-	-	-
Co		0.00	0.19	0.28	0.33	0.42	0.88	1.61	-0.24	-1.10	-0.56
CO32-		-	-	-	-	-	-	-	-	-	-
Cr		-0.01	0.04	0.59	1.39	0.16	-0.63	-1.01	1.33	1.37	0.57
Cu		0.06	0.05	-0.01	0.54	0.37	0.15	0.49	-0.16	-0.27	0.12
F		-	-	-	-	-	-	-	-	-	-
Fe		-0.11	0.23	-0.47	-1.26	-0.74	0.01	0.11	0.21	1.53	0.61
Hg		-	-	-	-	-	-	-	-	-	-
K		0.00	0.07	0.13	0.18	0.21	0.27	0.29	0.41	0.49	0.47
Li		0.00	0.19	0.29	0.35	0.38	0.48	0.57	0.78	1.22	0.71
Mg		0.00	0.11	0.15	0.18	0.23	0.39	0.54	0.85	0.68	0.30
Mn		0.00	0.03	0.07	0.13	0.22	0.52	0.95	-0.68	-1.25	-2.78
Mo		1.08	1.11	-0.16	-0.59	0.18	0.02	0.00	0.05	0.09	0.12
Na		0.00	0.07	0.13	0.17	0.18	0.22	0.23	0.27	0.31	0.30
Ni		0.00	0.19	0.32	0.37	0.21	0.09	0.79	-0.29	-1.08	0.39
NO3		-	-	-	-	-	-	-	-	-	-
Pb		0.00	0.17	0.73	1.38	0.29	0.00	0.47	0.62	-0.12	0.50
PO4		-	-	-	-	-	-	-	-	-	-
Sb		0.51	0.00	0.51	0.51	0.58	1.25	0.51	0.99	0.37	0.77
Se		0.00	0.19	0.24	0.32	0.17	0.38	0.52	0.66	1.02	0.75
Si		-0.85	-0.73	-0.27	0.01	0.38	0.41	0.32	0.51	-0.08	-0.21
Sn		0.00	0.31	-0.17	0.16	-0.18	-0.18	-0.18	-0.07	0.78	1.21
SO4		-	-	-	-	-	-	-	-	-	-
Sr		0.00	0.02	0.03	0.05	0.09	-0.04	0.08	0.27	0.22	0.11
Th		-	-	-	-	-	-	-	-	-	-
U		-	-	-	-	-	-	-	-	-	-
V		0.00	-2.64	-1.44	-1.12	0.53	-0.13	0.07	0.23	0.49	0.41
Zn		0.00	0.05	0.09	0.14	-0.32	0.30	1.48	0.47	0.07	1.57
Avg Deviation		0.06	0.12	0.08	0.12	0.11	0.13	0.17	0.14	0.17	0.17

11	12	Total Avg
11.9	12.7	Deviation
1.21	-0.92	0.28
0.95	0.56	0.26
0.97	-0.40	0.13
-1.09	-0.96	0.19
-	-	-
-0.03	0.95	0.09
-0.04	0.69	0.28
-	-	-
0.08	0.52	0.20
-	-	-
0.67	0.66	0.24
0.82	0.52	0.11
-	-	-
0.39	-1.30	0.22
-	-	-
0.50	-0.02	0.09
0.66	1.17	0.19
0.20	-1.50	0.17
-2.84	-4.56	0.53
0.28	0.06	0.14
0.31	-1.56	0.14
1.04	-0.17	0.15
-	-	-
1.70	2.15	0.28
-	-	-
0.28	0.08	0.18
0.84	0.74	0.16
0.53	0.59	0.14
1.21	1.87	0.22
-	-	-
-0.31	0.13	0.04
-	-	-
-	-	-
0.97	0.27	0.29
1.47	-0.04	0.22
0.20	0.26	0.20