

Name

Sewage sludge Rural NL

pH Dependent Leaching Test Scenario



Lab Test

Extra L/S Simulation

Lab Test

Model Parameters

Entity	Unit	Default
c0		-2.979
c1		0.05752
c2		-0.1153
c3		0.02539
c4		-0.001855
c5		4.424E-05
Clay	mg/kg	3000
Hydrous Ferric Oxide	mg/kg	500.0
L/S	L/kg	20.06
pE		4.250
pH		7.250
Solid Humic Acid	mg/kg	1.592E+05
Simulated Low L/S	L/kg	0.4000

Available Content

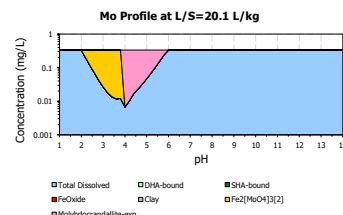
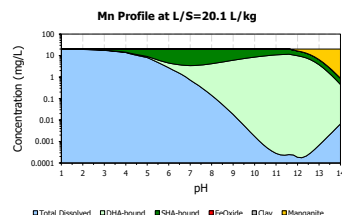
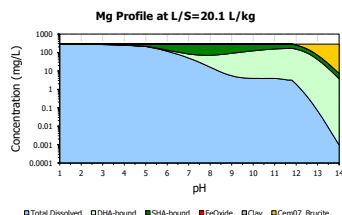
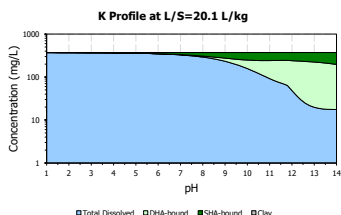
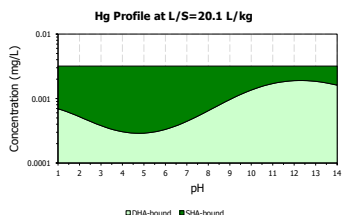
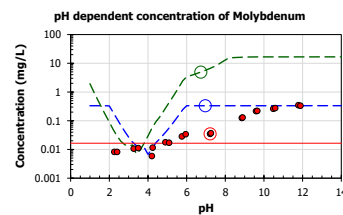
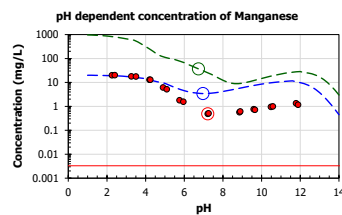
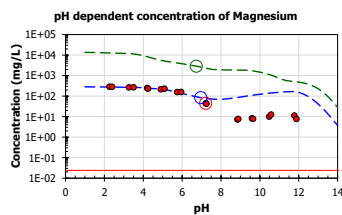
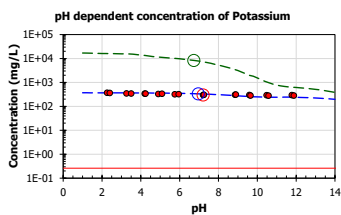
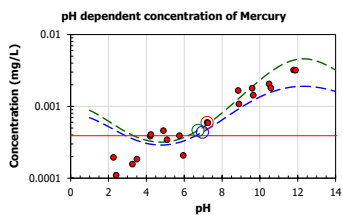
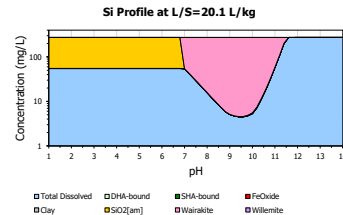
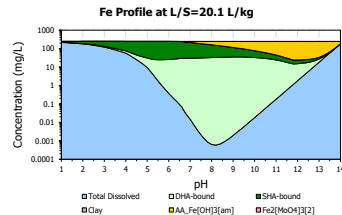
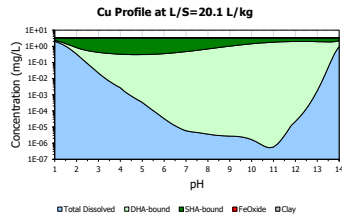
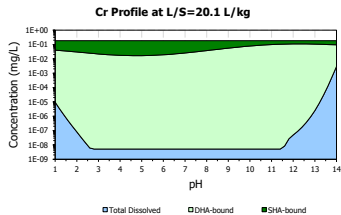
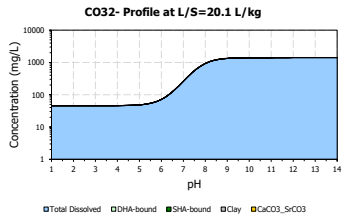
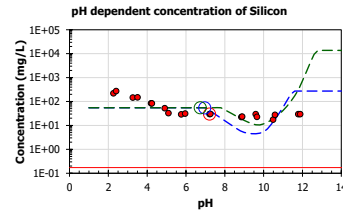
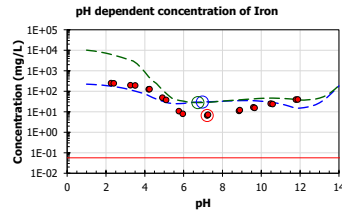
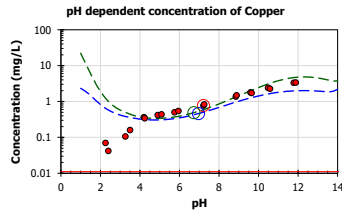
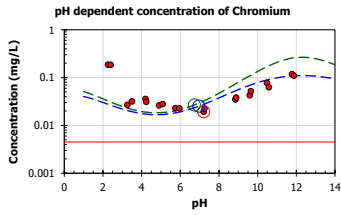
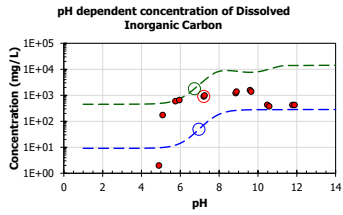
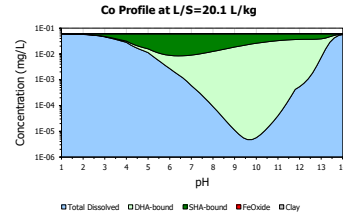
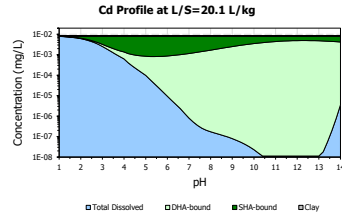
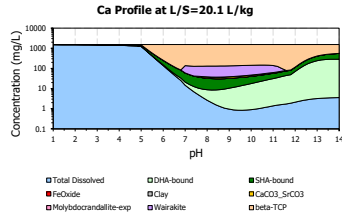
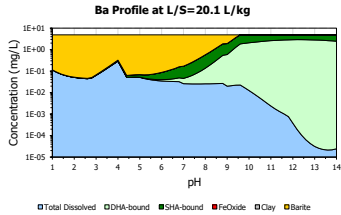
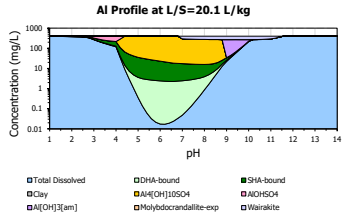
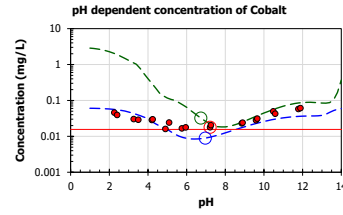
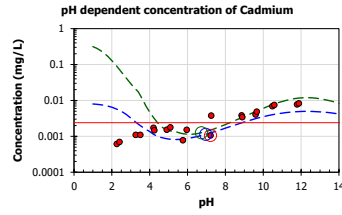
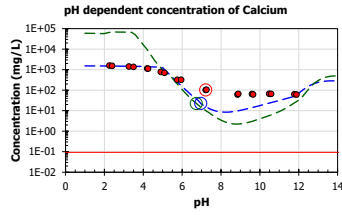
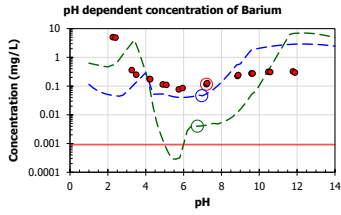
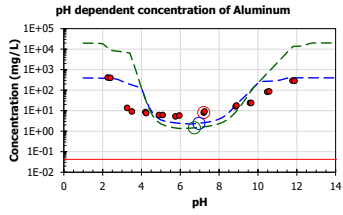
Entity	Unit	Default	Entity	Unit	Default	Entity	Unit	Default	Entity	Unit	Default
Acetic acid	mg/kg	2.220E-07	F	mg/kg	1.900E-08	Pb	mg/kg	15.48			
Ag	mg/kg	1.079E-07	Fe	mg/kg	4893	PO4	mg/kg	5.229E+04			
Al	mg/kg	8005	B	mg/kg	1.081E-08	Sb	mg/kg	0.3760			
As	mg/kg	7.492E-08	Si	mg/kg	5494	Se	mg/kg	7.896E-08			
Ba	mg/kg	97.67	Hg	mg/kg	0.06395	Sn	mg/kg	6.541			
Br	mg/kg	7.990E-08	K	mg/kg	7471	SO4	mg/kg	1.472E+04			
Ca	mg/kg	3.082E+04	Li	mg/kg	6.941E-09	Sr	mg/kg	287.8			
Cd	mg/kg	0.1664	Mg	mg/kg	5721	Th	mg/kg	2.320E-07			
Cl	mg/kg	3.545E-08	Mn	mg/kg	403.2	U	mg/kg	2.380E-07			
Co	mg/kg	1.227	Mo	mg/kg	6.703	V	mg/kg	5.313			
CO32-	mg/kg	2.840E+04	Na	mg/kg	3143	Zn	mg/kg	171.0			
Cr	mg/kg	3.704	Ni	mg/kg	7.143						
Cu	mg/kg	67.49	NO3	mg/kg	6.200E-08						

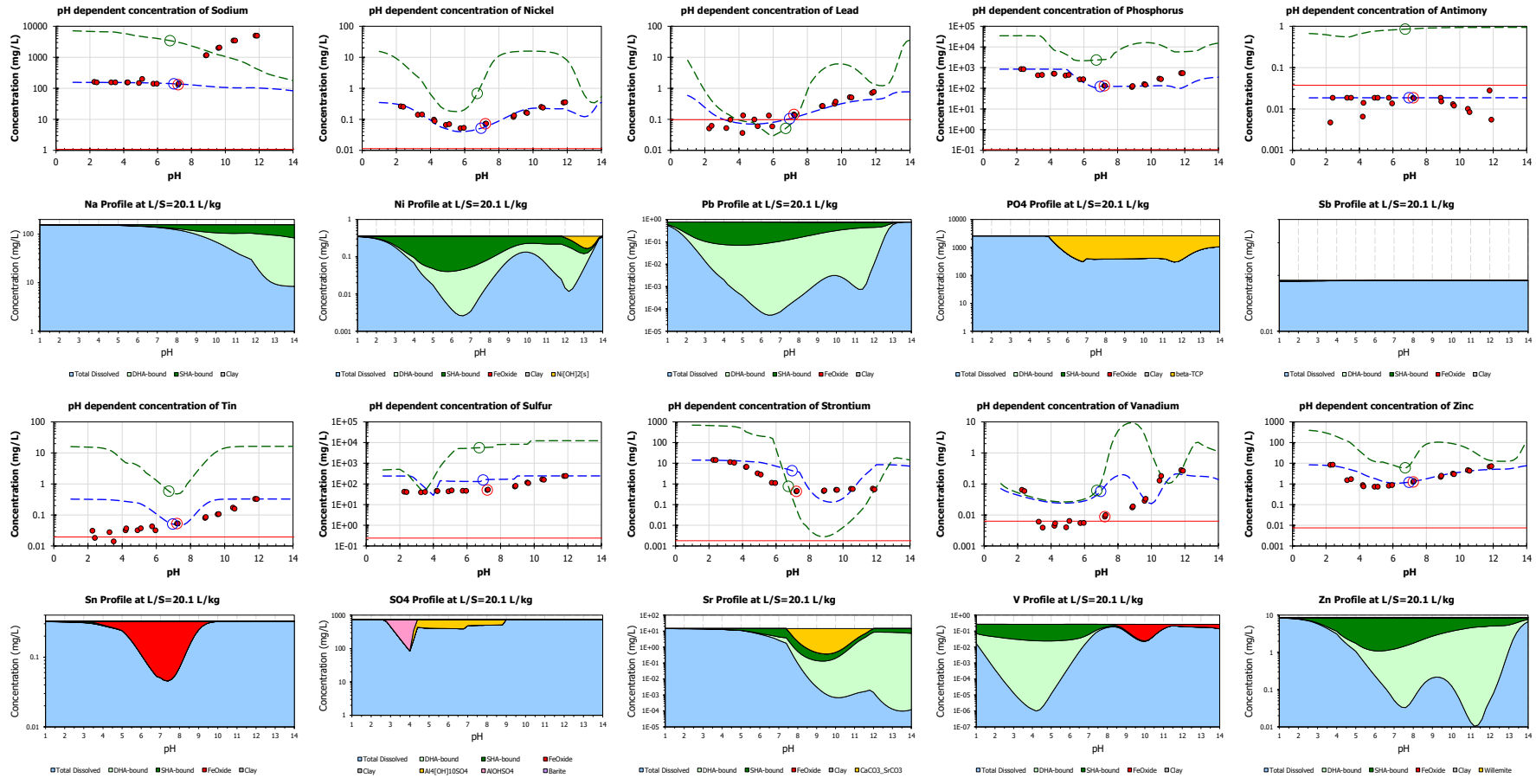
Solid Solutions

Name	End Member	Log(K) Reaction
None		

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+	Cem07_Gypsum	Yes	4.583	Cem07_Gypsum -> 1 Ca+2 + 2 H2O + 1 SO4-2
Al[OH]3[am]	Yes	12.20	Al[OH]3[am] + 1 H2O -> 1 Al[OH]4- + 1 H+	Fe2[MoO4]3[2]	Yes	86.35	Fe2[MoO4]3[2] + 8 H2O -> 2 Fe[OH]4- + 8 H+ + 3 MoO4-2
Al4[OH]10SO4	Yes	69.30	Al4[OH]10SO4 + 6 H2O -> 4 Al[OH]4- + 6 H+ + 1 SO4-2	Manganite	Yes	-25.27	Manganite + 3 H+ + 1 e- -> 2 H2O + 1 Mn+2
AlOHSO4	Yes	26.23	AlOHSO4 + 3 H2O -> 1 Al[OH]4- + 3 H+ + 1 SO4-2	Molybdocrandallite-exp	Yes	86.00	Molybdocrandallite-exp + 6 H2O -> 3 Al[OH]4- + 1 Ca+2 + 7 H+ + 3 MoO4-2
Barite	Yes	9.976	Barite -> 1 Ba+2 + 1 SO4-2	Ni[OH]2[s]	Yes	-10.80	Ni[OH]2[s] + 2 H+ -> 2 H2O + 1 Ni+2
BaSrSO4[50%Ba]	Yes	8.221	BaSrSO4[50%Ba] -> 0.5 Ba+2 + 1 SO4-2 + 0.5 Sr+2	Pb[OH]2[C]	Yes	-8.150	Pb[OH]2[C] + 2 H+ -> 2 H2O + 1 Pb+2
beta-TCP	Yes	28.93	beta-TCP -> 3 Ca+2 + 2 PO4-3	PbMoO4[c]	Yes	15.80	PbMoO4[c] -> 1 MoO4-2 + 1 Pb+2
CaCO3_SrCO3	Yes	19.85	CaCO3_SrCO3 -> 2 CO3-2 + 1 Ca+2 + 1 Sr+2	SiO2[am]	Yes	24.33	SiO2[am] + 2 H2O -> 2 H+ + 1 H2SiO4-2
Cem07_Brucite	Yes	-16.83	Cem07_Brucite + 2 H+ -> 2 H2O + 1 Mg+2	Wairakite	Yes	113.6	Wairakite + 10 H2O -> 2 Al[OH]4- + 1 Ca+2 + 8 H+ + 4 H2SiO4-2
Cem07_Calcite	Yes	8.485	Cem07_Calcite -> 1 CO3-2 + 1 Ca+2	Willemite	Yes	6.289	Willemite + 2 H+ -> 1 H2SiO4-2 + 2 Zn+2





Model Comparison: residuals - Concentration

Name Sewage sludge rural NL

Residual details, concentrations

		Residuals as log(model/sample)																				
																					Own pH	
Fraction		20	10	19	9	8	18	17	7	6	16	15	5	14	4	3	13	2	12	11	1	Total Avg
	pH	2.26	2.40	3.26	3.50	4.20	4.24	4.90	5.09	5.75	5.95	7.21	7.25	8.85	8.89	9.59	9.65	10.5	10.6	11.8	11.9	Deviation
Al		-0.04	-0.03	1.20	1.29	0.66	0.63	-0.18	-0.26	-0.32	-0.38	-0.50	-0.54	0.05	0.05	0.57	0.63	0.51	0.50	0.14	0.14	0.12
As		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ba		-2.03	-2.03	-0.58	-0.27	-0.15	-0.22	-0.33	-0.34	-0.28	-0.33	-0.34	-0.36	0.40	0.37	0.82	0.83	0.87	0.89	0.95	0.99	0.19
Br		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ca		-0.02	-0.01	0.01	0.02	0.08	0.09	0.22	0.16	-0.11	-0.29	-0.82	-0.85	-0.80	-0.83	-0.66	-0.63	-0.46	-0.42	-0.12	-0.03	0.10
Cd		0.97	0.88	0.36	0.26	-0.18	-0.12	-0.25	-0.33	0.03	-0.25	0.07	-0.48	-0.21	-0.15	-0.12	-0.19	-0.24	-0.26	-0.20	-0.23	0.08
Cl		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Co		0.09	0.14	0.16	0.13	-0.04	-0.07	0.01	-0.22	-0.24	-0.30	-0.27	-0.33	-0.12	-0.13	-0.09	-0.13	-0.23	-0.15	-0.20	-0.23	0.04
CO32-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cr		-0.83	-0.84	-0.12	-0.22	-0.32	-0.26	-0.19	-0.22	-0.10	-0.08	0.15	0.10	0.18	0.15	0.21	0.13	0.06	0.16	-0.04	0.00	0.07
Cu		0.97	1.14	0.56	0.35	-0.06	-0.04	-0.14	-0.15	-0.18	-0.19	-0.19	-0.21	-0.16	-0.18	-0.16	-0.13	-0.17	-0.14	-0.23	-0.23	0.09
F		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fe		-0.15	-0.16	-0.23	-0.27	-0.31	-0.34	-0.17	-0.12	0.36	0.51	0.67	0.63	0.50	0.46	0.32	0.35	0.07	0.08	-0.42	-0.42	0.08
B		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Si		-0.60	-0.70	-0.42	-0.44	-0.19	-0.18	0.02	0.23	0.27	0.25	0.15	0.12	-0.59	-0.63	-0.82	-0.70	-0.10	-0.20	0.96	0.97	0.12
Hg		0.39	0.62	0.35	0.26	-0.11	-0.13	-0.20	-0.07	-0.09	0.20	-0.10	-0.09	-0.26	-0.07	-0.18	-0.07	-0.13	-0.06	-0.24	-0.23	0.05
K		-0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.03	0.04	0.04	0.04	0.03	-0.04	-0.05	-0.07	-0.05	-0.08	-0.07	-0.08	-0.07	0.01
Li		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mg		-0.02	-0.01	0.00	-0.01	0.00	0.02	0.01	-0.04	-0.01	-0.06	0.23	0.25	1.07	1.05	1.12	1.15	1.14	1.05	1.18	1.32	0.16
Mn		-0.02	-0.03	-0.03	-0.04	0.00	-0.01	0.19	0.22	0.47	0.47	0.85	0.83	1.00	0.97	0.99	1.02	1.01	1.00	0.90	0.94	0.16
Mo		1.30	1.14	0.19	0.06	0.23	-0.01	0.34	0.51	0.89	0.96	0.98	0.96	0.43	0.41	0.19	0.18	0.11	0.08	-0.02	0.00	0.14
Na		-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.01	-0.12	0.02	0.02	0.02	-0.02	-0.99	-1.00	-1.26	-1.28	-1.52	-1.52	-1.68	-1.68	0.20
Ni		0.04	0.04	0.07	-0.02	-0.11	-0.08	-0.12	-0.18	-0.11	-0.12	-0.10	-0.10	0.10	0.06	0.10	0.13	-0.04	-0.02	-0.20	-0.23	0.03
NO3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pb		0.55	0.41	0.25	-0.06	0.30	-0.26	-0.15	0.07	-0.24	0.13	-0.10	-0.07	-0.09	-0.10	-0.05	-0.11	-0.16	-0.14	-0.21	-0.24	0.05
PO4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sb		0.60	0.00	0.00	0.00	0.46	0.12	0.00	0.00	0.00	0.14	0.00	0.01	0.00	0.09	0.16	0.19	0.27	0.35	-0.18	0.53	0.05
Se		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sn		1.01	1.24	1.04	1.33	0.93	0.87	0.88	0.79	0.50	0.55	-0.06	-0.06	0.43	0.42	0.47	0.47	0.28	0.31	0.00	0.00	0.16
SO4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sr		-0.02	-0.01	0.07	0.10	0.27	0.26	0.54	0.58	0.85	0.82	0.95	0.93	-0.47	-0.52	-0.58	-0.55	-0.10	0.00	1.01	1.12	0.14
Th		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V		-0.21	-0.19	0.69	0.85	0.74	0.66	0.78	0.58	0.68	0.70	0.98	0.95	0.85	0.79	0.05	-0.05	-0.42	-0.47	-0.14	-0.13	0.14
Zn		-0.04	-0.06	0.55	0.45	0.53	0.58	0.40	0.34	0.15	0.10	0.02	-0.02	0.07	0.02	0.02	0.05	-0.05	-0.01	-0.14	-0.16	0.06
Avg Deviation		0.15	0.15	0.10	0.10	0.08	0.07	0.07	0.07	0.08	0.09	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.11	0.13	0.14	0.10