Appendix 8.E

PHREEQC thermodynamic equilibrium results from water analyses in the test cells

Reading data base.

```
SOLUTION_MASTER_SPECIES
    SOLUTION_SPECIES
    PHASES
    EXCHANGE_MASTER_SPECIES
    EXCHANGE SPECIES
    SURFACE_MASTER_SPECIES
    SURFACE SPECIES
    END
_____
Reading input data for simulation 1.
_____
    SOLUTION 1 Cell 1B
         temp 17.4
              11.79
         рН
              4.0
         pe
         redox pe
         units mg/l
         density
                   1:0
         Al
              1.10
              0.24
         В
              0.31
         Ва
         Br
              2.7
         C(4) 1279 charge
         Ca
              810
         C1
              70
              0.02
         Cu
              4.3
         F
              410
         ĸ
              0.07
         Mq
         N(5) 21.9
              130
         Na
              .000000316 Mol/1
          Ρ
          Pb
              0.01
          S(6) 1600
          Si
              5.8
              5.0
          \mathbf{Sr}
------
Beginning of initial solution calculations.
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Initial solution 1. Cell 1B
```

-----Solution composition------

Molality	Moles	
4.095e-05	4.095e-05	
2.230e-05	2.230e-05	
2.267e-06	2.267e-06	
3.394e-05	3.394e-05	
7.352e-03	7.352e-03	Charge balance
2.030e-02	2.030e-02	
	4.095e-05 2.230e-05 2.267e-06 3.394e-05 7.352e-03	4.095e-05 2.230e-05 2.267e-06 3.394e-05 7.352e-03 4.095e-05 2.230e-05 2.267e-06 3.394e-05 7.352e-03 4.095e-05 2.230e-05 3.394e-05 7.352e-03

C1	1.983e-03	1.983e-03
Cu	3.161e-07	3.161e-07
F	2.273e-04	2.273e-04
K	1.053e-02	1.053e-02
Mg	2.892e-06	2.892e-06
N(5)	1.570e-03	1.570e-03
Na	5.679e-03	5.679e-03
P	3.174e-07	3.174e-07
Pb	4.848e-08	4.848e-08
S(6)	1.673e-02	1.673e-02
Śi	9.695e-05	9.695e-05
Sr	5.731e-05	5.731e-05

------Description of solution-----

------Distribution of species-----

				Log	Log	Log
	Species	Molality	Activity	Molality	Activity	Gamma
	017	4.229e-03	3.389e-03	-2.374	-2.470	-0.096
	OH-		1.622e-12	-11.718	-11.790	-0.072
	H+	1.912e-12			0.000	0.000
	H2O	5.551e+01	9.990e-01	0.000	0.000	0.000
Al		4.095e-05				
	Al (OH) 4 -	4.095e-05	3.329e-05	-4.388	-4.478	-0.090
	Al (OH) 3	3.084e-11	3.127e-11	-10.511	-10.505	0.006
	Al (OH) 2+	7.636e-16	6.209e-16	-15.117	-15.207	-0.090
	AlOH+2	5.892e-22	2.575e-22	-21.230	-21.589	-0.359
	Alf3	2.150e-23	2.180e-23	-22.668	-22.662	0.006
	A1F2+	1.219e-23	9.909e-24	-22.914	-23.004	-0.090
	AlF4-	1.876e-24	1.525e-24	-23.727	-23.817	-0.090
	AlF+2	2.675e-25	1.169e-25	-24.573	-24.932	-0.359
	AlF5-2	9.897e-27	4.326e-27	-26.005	-26.364	-0.359
	A1SO4+	1.287e-27	1.047e-27	-26.890	-26.980	-0.090
	A1+3	3.064e-28	6.957e-29	-27,514	-28.158	-0.644
	Al (SO4) 2-	2.066e-28	1.680e-28	-27.685	-27.775	-0.090
	AlF6-3	5.726e-30	8.895e-31	-29.242	-30.051	-0.809
	AlHSO4+2	3.244e-40	1.418e-40	-39.489	-39.848	-0.359
в		2.230e-05				
	H2BO3-	2.224e-05	1.808e-05	-4.653	-4.743	-0.090
	нзвоз	5.796e-08	5.876e-08	-7.237	-7.231	0.006
	BF (OH) 3-	4.670e-12	3.797e-12	-11.331	-11.421	-0.090
	BF2 (OH) 2-	1.445e-19	1.175e-19	-18.840	-18.930	-0.090
	BF30H-	5.226e-29	4.249e-29	-28.282	-28.372	-0.090
	Broon-	5.2200 25	1.1.50 25	-01004		

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	BF4-	6.149e-38	5.000e-38	-37.211	-37.301	-0.090	
Ba		2.267e-06	1 140- 00	C 040	5 040	0 000	
	BaSO4	1.127e-06	1.142e-06	-5.948	-5.942	0.006	
	Ba+2	9.730e-07	4.330e-07	-6.012	-6.364	-0.352	
	BaCO3	1.562e-07	1.583e-07	-6.806	-6.800	0.006	
	BaOH+	1.112e-08	9.038e-09	-7.954	-8.044	-0.090	
	BaHCO3+	1.357e-10	1.103e-10	-9.867	-9.957	-0.090	
Br		3.394e-05					
	Br-	3.394e-05	2.700e-05	-4.469	-4.569	-0.099	
C(4)		7.352e-03					
	CaCO3	5.425e-03	5.501e-03	-2.266	-2.260	0.006	
	CO3-2	1.820e-03	8.245e-04	-2.740	-3.084	-0.344	
	NaCO3 -	5.678e-05	4.617e-05	-4.246	-4.336	-0.090	
	HCO3-	4.115e-05	3.376e-05	-4.386	-4.472	-0.086	
	SrCO3	6.675e-06	6.768e-06	-5.176	-5.170	0.006	
	CaHCO3+	2.072e-06	1.700e-06	-5.684	-5.770	-0.086	
	MgCO3	3.843e-07	3.896e-07	-6.415	-6.409	0.006	· · ·
	BaCO3	1.562e-07	1.583e-07	-6.806	-6.800	0.006	
	NaHCO3	8.345e-08	8.461e-08	-7.079	-7.073	0.006	
	STHCO3+	7.810e-09	6.408e-09	-8.107	-8.193	-0.086	
	MgHCO3+	2.630e-10	2.139e-10	-9.580	-9.670	-0.090	
		1.359e-10	1.377e-10	-9.867	-9.861	0.006	
	CO2	1.357e-10	1.103e-10	-9.867	-9.957	-0.090	
	BaHCO3+		1.535e-11	-10.454	-10.814	-0.359	
	Pb (CO3) 2-2					0.006	
	PbCO3	7.312e-12	7.413e-12	-11.136	-11.130		
	PbHCO3+	1.707e-17	1.388e-17	-16.768	-16.858	-0.090	
Ca		2.030e-02		0 0 0 0	0 044	0.040	
	Ca+2	9.937e-03	4.524e-03	-2.003	-2.344	-0.342	
	CaCO3	5.425e-03	5.501e-03	-2.266	-2.260	0.006	
	CaSO4	4.357e-03	4.417e-03	-2.361	-2.355	0.006	
	CaOH+	5.688e-04	4.625e-04	-3.245	-3.335	-0.090	
	CaF+	7.115e-06	5.785e-06	-5.148	-5.238	-0.090	
	CaHCO3+	2.072e-06	1.700e-06	-5.684	-5.770	-0.086	
	CaPO4-	3.167e-07	2.575e-07	-6.499	-6.589	-0.090	
	CaHPO4	2.017e-10	2.045e-10	-9.695	-9.689	0.006	
	CaHSO4+	4.728e-14	3.845e-14	-13.325	-13.415	-0.090	
	CaH2PO4+	3.189e-16	2.593e-16	-15.496	-15.586	-0.090	
Cl		1.983e-03					
	C1-	1.983e-03	1.593e-03	-2.703	-2.798	-0.095	
	PbCl+	3.325e-17	2.704e-17	-16.478	-16.568	-0.090	
	PbC12	7.786e-20	7.894e-20	-19.109	-19.103	0.006	
	PbC13-	1.170e-22	9.516e-23	-21.932	-22.022	-0.090	
	PbCl4-2	1.563e-25	6.831e-26	-24.806	-25.166	-0.359	
Cu (1)		2.364e-18					
CG (1)	, Cu+	2.364e-18	1.867e-18	-17.626	-17.729	-0.103	
Cu (2)		3.161e-07					
Cu (2)	/ Cu (OH) 2	2.991e-07	3.032e-07	-6.524	-6.518	0.006	
	Cu (OH) 3 -	1.384e-08	1.126e-08	-7.859	-7.949	-0.090	
	Cu (OH) 3-	3.165e-09	1.383e-09	-8.500	-8.859	-0.359	
		2.921e-13	2.356e-13	-12.535	-12.628	-0.093	
	CuOH+			-12.555	-16.417	-0.333	
	Cu+2	8.228e-17	3.825e-17			0.006	
_	CuSO4	3.842e-17	3.895e-17	-16.415	-16.409	0.000	
F	_	2.273e-04	1 1 2 1 1 1		~ ~ ~ ~ 4	0.000	
	F -	2.198e-04	1.761e-04	-3.658	-3.754	-0.096	
	CaF+	7.115e-06	5.785e-06	-5.148	-5.238	-0.090	
	NaF	4.454e-07	4.516e-07	-6.351	-6.345	0.006	
	MgF+	6.914e-09	5.622e-09	-8.160	-8.250	-0.090	

	BF (OH) 3 -	4.670e-12	3.797e-12	-11.331	-11.421	-0.090	
	HF	3.693e-13	3.744e-13	-12.433	-12.427	0.006	
	HF2 -	2.912e-16	2.368e-16	-15.536	-15.626	-0.090	
	BF2 (OH) 2-	1.445e-19	1.175e-19	-18.840	-18.930	-0.090	
	AlF3	2.150e-23	2.180e-23	-22.668	-22.662	0.006	
	AlF2+	1.219e-23	9.909e-24	-22.914	-23.004	-0.090	
	AlF4-	1.876e-24	1.525e-24	-23.727	-23.817	-0.090	
	AlF+2	2.675e-25	1.169e-25	-24.573	-24.932	-0.359	
	A1F5-2	9.897e-27	4.326e-27	-26.005	-26.364	-0.359	
	BF3OH-	5.226e-29	4.249e-29	-28.282	-28.372	-0.090	
	AlF6-3	5.726e-30	8.895e-31	-29.242	-30.051	-0.809	
	BF4 -	6.149e-38	5.000e-38	-37.211	-37.301	-0.090	
	SiF6-2	0.000e+00	0.000e+00	-44.798	-45.158	-0.359	
H(0)	0110 2	3.970e-35					
11(0)	Н2	1.985e-35	2.012e-35	-34.702	-34.696	0.006	
17	n2	1.053e-02	2.VI2C-JJ	-J-1,702	-24.020	0.000	
ĸ			0 100- 00	1 000	2 007	0 005	۰ .
	K+	1.019e-02	8.182e-03	-1.992	-2.087	-0.095	
	KSO4 -	3.248e-04	2.641e-04	-3.488	-3.578	-0.090	
	KOH	1.724e-05	1.748e-05	-4.764	-4.758	0.006	
	KHPO4 –	1.871e-12	1.522e-12	-11.728	-11.818	-0.090	
Mg		2.892e-06					
-	Mg+2	1.189e-06	5.565e-07	-5.925	-6.255	-0.330	
	MgOH+	7.569e-07	6.154e-07	-6.121	-6.211	-0.090	
	MgSO4	5.540e-07	5.617e-07	-6.257	-6.251	0.006	
	MgCO3	3.843e-07	3.896e-07	-6.415	-6.409	0.006	
	-	6.914e-09	5.622e-09	-8.160	-8.250	-0.090	
	MgF+			-9.580	-9.670	-0.090	
	MgHCO3+	2.630e-10	2.139e-10				
	MgPO4 -	5.256e-11	4.273e-11	-10.279	-10.369	-0.090	
	MgHPO4	3.355e-14	3.401e-14	-13.474	-13.468	0.006	
	MgH2PO4+	4.995e-20	4.062e-20	-19.301	-19.391	-0.090	
N(5)		1.570e-03					
	NO3 -	1.570e-03	1.250e-03	-2.804	-2.903	-0.099	
	PbNO3+	1.176e- 17	9.563e-18	-16.930	-17.019	-0.090	
Na		5.679e-03					
110	Na+	5.467e-03	4.456e-03	-2.262	-2.351	-0.089	
	NaSO4-	1.376e-04	1.119e-04	-3.861	-3.951	-0.090	
		5.678e-05	4.617e-05	-4.246	-4.336	-0.090	
	NaCO3-					0.006	
	NaOH	1.789e-05	1.814e-05	-4.747	-4.741		
	NaF	4.454e-07	4.516e-07	-6.351	-6.345	0.006	
	NaHCO3	8.345e-08	8.461e-08	-7.079	-7.073	0.006	
	NaHPO4-	1.019e-12	8.287e-13	-11.992	-12.082	-0.090	
0(0)		6.164e-26					
	02	3.082e-26	3.125e-26	-25.511	-25.505	0.006	
Р		3.174e-07					
_	CaPO4-	3.167e-07	2.575e-07	-6.499	-6.589	-0.090	
	HPO4-2	2.251e-10	9.538e-11	-9.648	-10.021	-0.373	
		2.017e-10	2.045e-10	-9.695	-9.689	0.006	
	CaHPO4	1.566e-10	2.269e-11	-9.805	-10.644	-0.839	
	PO4 - 3		4.273e-11		-10.844	-0.090	
	MgPO4 -	5.256e-11		-10.279			
	KHPO4 -	1.871e-12	1.522e-12	-11.728	-11.818	-0.090	
	NaHPO4 -	1.019e-12	8.287e-13	-11.992	-12.082	-0.090	
	MgHPO4	3.355e-14	3.401e-14	-13.474	-13.468	0.006	
	H2PO4-	3.206e-15	2.603e-15	-14.494	-14.585	-0.090	
	CaH2PO4+	3.189e-16	2.593e-16	-15.496	-15.586	-0.090	
	MgH2PO4+	4.995e-20	4.062e-20	-19.301	-19.391	-0.090	
Pb		4.848e-08					
~ ~	Pb(OH)4-2	3.400e-08	1.486e-08	-7.468	-7.828	-0.359	
		3.2000-00	1.1000 00				

	Pb (OH) 3 -	1.295e-08	1.053e-08	-7.888	-7.977	-0.090
	Pb (OH) 2	1.469e-09	1.489e-09	-8.833	-8.827	0.006
	Pb(CO3)2-2	3.513e-11	1.535e-11	-10.454	-10.814	-0.359
	PbOH+	7.643e-12	6.214e-12	-11.117	-11.207	~0.090
	PbCO3	7.312e-12	7.413e-12	-11.136	-11.130	0.006
			1.531e-15	-14.821	-14.815	0.006
	PbSO4	1.510e-15				
	Pb+2	1.184e-15	5.174e-16	-14.927	-15.286	-0.359
	Pb(SO4)2-2	9.677e-17	4.230e-17	-16.014	-16.374	-0.359
	PbCl+	3.325e-17	2.704e-17	-16.478	-16.568	-0.090
	PbHCO3+	1.707e-17	1.388e-17	-16.768	-16.858	-0.090
	PbNO3+	1.176e-17	9.563e-18	-16.930	-17.019	-0.090
	PbC12	7.786e-20	7.894e-20	-19.109	-19.103	0.006
	PbC13-	1.170e-22	9.516e-23	-21.932	-22.022	-0.090
	Pb2OH+3	4.634e-25	7.198e-26	-24.334	-25.143	-0.809
	PbC14-2	1.563e-25	6.831e-26	-24.806	-25.166	-0.359
$\alpha(\alpha)$			0.0010 20	11.000	201200	0.007
S(6)		673e-02	5.263e-03	-1.925	-2.279	-0.354
	SO4-2	1.189e-02			-2.355	0.006
	CaSO4	4.357e-03	4.417e-03	-2.361		
	KS04 -	3.248e-04	2.641e-04	-3.488	-3.578	
	NaSO4-	1.376e-04	1.119e-04	-3.861	-3.951	-0.090
	SrSO4	1.486e-05	1.507e-05	-4.828	-4.822	0.006
	BaSO4	1.127e-06	1.142e-06	-5.948	-5.942	0.006
	MgSO4	5.540e-07	5.617e-07	-6.257	-6.251	0.006
	HSO4 -	8.693e-13	7.068e-13	-12.061	-12.151	-0.090
	CaHSO4+	4.728e-14	3.845e-14	-13.325	-13.415	-0.090
	PbSO4	1.510e-15	1.531e-15	-14.821	-14.815	0.006
	Pb(S04)2-2	9.677e-17	4.230e-17	-16.014	-16.374	-0.359
	CuSO4	3.842e-17	3.895e-17	-16.415	-16.409	0.006
		1.287e-27	1.047e-27	-26.890	-26.980	-0.090
	A1SO4+			-27.685	-27.775	-0.090
	Al (SO4)2-	2.066e-28	1.680e-28			-0.359
	AlHSO4+2	3.244e-40	1.418e-40	-39.489	-39.848	-0.359
Si		9.695e-05				
	H3SiO4-	9.163e-05	7.450e-05	-4.038	-4.128	-0.090
	H2SiO4-2	4.259e-06	1.862e-06	-5.371	-5.730	-0.359
	H4SiO4	1.067e-06	1.082e-06	-5.972	-5.966	0.006
	SiF6-2	0.000e+00	0.000e+00	-44.798	-45.158	-0.359
Sr		5.731e-05				
	Sr+2	3.515e-05	1.609e-05	-4.454	-4.793	-0.339
	SrSO4	1.486e-05	1.507e-05	-4.828	-4.822	0.006
	SrCO3	6.675e-06		-5.176		
		6 2250-07	5.084e-07	-6.206	-6.294	-0.088
	SrOH+		6.408e-09	_Q 107	_Q 197	-0.086
	SrHCO3+	7.8106-09	6.4088-03	-0.107	-0.193	-0.000
		Satu	ration indic	ces		
	Phase	SI log I	AP log KT			
	Al(OH)3(a)	-4.10 7.		Al (OH) 3		
	Albite	-6.22 -1.	24 4.98	NaAlSi308		
	Alunite	-19.94 -20.		KA13 (SO4) 2	2 (OH) 6	
	Anglesite		.56 -7.83			
	Anhydrite		.62 -4.34			
			.73 27.02	Cablocion	2	
	Anorthite		13 27.02	CaCU3	•	
	Aragonite	2.80 -5.	CA 10.27			
	Barite	1.46 -8.	.64 -10.10	pdSU4		
	Durres				-10 01-	67010/0U\0
	Ca-Montmori Calcite	llonite -10.14	-1.58 8. .43 -8.44	56 Ca0.165	5A12.33Si3.	.67010 (OH) 2

Celestite	-0.45	-7.07	-6.62	SrSO4
Cerrusite	-5.15	-18.37	-13.22	PbCO3
Chalcedony	-2.32	-5.96	-3.64	SiO2
Chlorite(14A)	11.87	83.15	71.28	Mg5Al2Si3O10(OH)8
Chrysotile	6.88	40.04	33.17	Mg3Si2O5 (OH) 4
C02 (g)	-8.49	-26.66	-18.18	CO2
Dolomite	2.14	-14.77	-16.91	CaMg(CO3)2
Fluorite	0.84	-9.85	-10.69	CaF2
Gibbsite	-1.34	7.21	8.55	Al (OH) 3
Gypsum	-0.04	-4.62	-4.58	CaSO4:2H2O
	-31.58			
Hydroxyapatite	8.10	-31.87	-39.97	Ca5 (PO4) 30H
Illite	-6.82	5.86	12.68	K0.6Mg0.25Al2.3Si3.5O10(OH)2
K-feldspar	-3.29	-0.98	2.31	KAlSi308
K-mica	-0.40	13.44	13.84	KAl3Si3O10 (OH) 2
Kaolinite	-5.62	2.49	8.11	Al2Si2O5 (OH) 4
O2 (g)	-22.58	63.16	85.74	02
Pb (OH) 2	-0.13	8.29	8.42	Pb (OH) 2
Quartz	-1.87	-5.96	-4.10	SiO2
Sepiolite	0.79	16.75	15.97	Mg2Si307.50H:3H2O
Sepiolite(d)	-1.91	16.75	18.66	Mg2Si3O7.5OH:3H2O
	-3.19			
Strontianite	1.39	-7.88	-9.27	SrCO3
Talc				Mg3Si4O10(OH)2
Witherite	-0.86	-9.45	-8.59	BaCO3

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End of simulation.

Reading input data for simulation 2.

End of run.

_____ Reading data base. -----

```
SOLUTION MASTER SPECIES
     SOLUTION_SPECIES
     PHASES
     EXCHANGE_MASTER_SPECIES
     EXCHANGE SPECIES
     SURFACE_MASTER_SPECIES
     SURFACE_SPECIES
     END
************************************
Reading input data for simulation 1.
------
     SOLUTION 1 Cell 2B
           temp 12.5
           рН
                13.1
           pe
                4
           redox pe
           units mg/l
           density
                      1
           Al
                1.42
                0.26
           в
           Ba
                 0.33
           Br
                8.3
           C(4) 450
           Ca
                1210
           C1
                155
           Cu
                0.02
           F
                4.7
           Κ
                 1210
           Mg
                0.07
           N(5) 19.8
```

Na

Pb

Si

Sr

Ρ

Initial solution 1. Cell 2B

220 charge

2.11e-07

0.01

14.1

-------Beginning of initial solution calculations.

S(6) 2850 5.9

-----Solution composition-----

Mo1/1

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Elements	Molality	Moles
Al	5.295e-05	5.295e-05
В	2.420e-05	2.420e-05 2.418e-06
Ba	2.418e-06 1.045e-04	2.418e-06 1.045e-04
Br	7.420e-03	7.420e-03
C(4)		•••-
Ca	3.038e-02	3.038e-02

C1	4.399e-03	4 3990-03				
Cl	3.167e-07					
Cu	2.489e-04					
F						
ĸ	3.114e-02					
Mg	2.897e-06					
N(5)	1.422e-03					
Na	6.623e-02		Charge bal	ance		
P	2.123e-07					
Pb	4.856e-08	4.856e-08				
S(6)	2.985e-02					
Si	9.880e-05	9.880e-05				
Sr	1.619e-04	1.619e-04				
 	Descrip	tion of solu	ution			•
				-		
	pH =	13.100				
		4.000				
Activit	y of water =	0.996				
	c strength =					
	water (kg) =					
Total alkalini						
Total CO	2 (mol/kg) =	7.420e-03				
Temperatu	re (deg C) =	12,500				
Flectrical ha	lance (eq) =	1.766e-13			•	
	Iterations =					
		1.110905e+0	2			
		5.573035e+0				
		5.575055610	*			
	Distrib	ution of sn	ecies			_
 		de ton or ap	CCTC3			
		•	Loq	Log	Log	
0	Molality	Activity				
Species	MOTATICA	MUCIVILY	motarrey	rect vicy	Quintina	
017	C 2510-02	4.568e-02	-1.204	-1.340	-0.136	
OH-	6.251e-02	*.0000-702	-1.204	-1.040	0.700	

Al

- -

- -

1.204 1.340 OH-6.251e-02 4.5688-02 7.943e-14 -0.091 9.805e-14 -13.009 -13.100 H+ -0.002 -0.002 0.000 5.551e+01 9.962e-01 H20 5.295e-05 -0.118 5.295e-05 4.034e-05 -4.276 -4.394 Al (OH) 4 -0.016 1.861e-12 1.930e-12 -11.730-11.714 Al (OH) 3 -17.546 -0.1183.736e-18 2.846e-18 -17.428Al(OH)2+ -0.473 -25.027 2.790e-25 9.393e-26 -24.554 AlOH+2 0.016 4.797e-28 4.973e-28 -27.319-27.303 AlF3 3.011e-28 2.294e-28 -27.521 -27.639 -0.118 AlF2+ -0.118 3.446e-29 -28.344 -28.463 4.524e-29 AlF4--0.473 8.335e-30 2.806e-30 -29.079 -29.552 AlF+2 -0.473 2.908e-31 9.790e-32 -30.536 -31.009 A1F5-2 3.332e-32 -31.359 -31.477 -0.118 4.375e-32 A1SO4+ -31.937 -32.760 -0.823 1.157e-32 1.738e-33 Al+3 7.119e-33 -32.029 -32.148 -0.118 9.347e-33 Al(SO4)2-2.215e-35 -33.591 -34.655 -1.064 2.565e-34 AlF6-3 -45.195 -45.668 -0.473 0.000e+00 AlHSO4+20.000e+00 2.420e-05 в -4.734 -0.118 1.843e-05 -4.616 2.420e-05 H2BO3--8.491 0.016 -8.507 3.228e-09 3.114e-09 H3BO3 -0.118 2.569e-13 -12.708 1.957e-13 -12.590 BF (OH) 3 --0.118 -21.527 2.969e-22 -21.409 3.897e-22 BF2 (OH) 2--0.118 -32.240 -32.1225.752e-33 BF3OH-7.551e-33

	224	0.0000+00	0.000e+00	-42.361	-42.479	-0.118
-	BF4~	0.000e+00	0.00000000	-44.301	-12.1/5	-0.110
Ba		2.418e-06	1 1700 06	-5.945	-5.929	0.016
	BaSO4	1.136e-06	1.178e-06		-6.485	-0.481
	Ba+2	9.903e-07	3.274e-07	-6.004		
	BaOH+	1.826e-07	1.391e-07	-6.738	-6.857	-0.118
	BaCO3	1.089e-07	1.129e-07	-6.963	-6.947	0.016
	BaHCO3+	5.430e-12	4.136e-12	-11.265	-11.383	-0.118
Br		1.045e-04				
	Br-	1.045e-04	7.527e-05	-3.981	-4.123	-0.143
C(4)		7.420e-03				
	CaCO3	4.400e-03	4.562e-03	-2.357	-2.341	0.016
	C03-2	2.509e-03	8.580e-04	-2.600	-3.067	-0.466
	NaCO3-	4.966e-04	3.783e-04	-3.304	-3.422	-0.118
	SrCO3	1.136e-05	1.178e-05	-4.944	-4.929	0.016
	нсоз-	2.555e~06	1.953e-06	-5.593	-5,709	-0.117
	BaCO3	1.089e-07	1.129e-07	-6.963	-6.947	0.016
	CaHCO3+	9.685e-08	7.406e-08	-7.014	-7.130	-0.117
		8.236e-08	8.539e-08	-7.084	-7.069	0.016
	MgCO3	4.844e-08	5.023e-08	-7.315	-7.299	0.016
	NaHCO3		6.061e-10	-9.101	-9.217	-0.117
	SrHCO3+	7.927e-10				-0.118
	BaHCO3+	5.430e-12	4.136e-12	-11.265	-11.383	-0.118
	MgHCO3+	3.648e-12	2.779e-12	-11.438	-11.556	
	CO2	4.138e-13	4.290e-13	-12.383	-12.368	0.016
	Pb(CO3)2-2		1.048e-16	-15.507	-15.980	-0.473
	PbCO3	4.690e-17	4.863e-17	-16.329	-16.313	0.016
	PbHCO3+	6.643e-24	5.060e-24	-23,178	-23,296	-0.118
Ca		3.038e-02				
	Ca+2	1.088e-02	3.816e-03	-1.964	-2.418	-0.455
	CaOH+	1.043e-02	7.943e-03	-1.982	-2.100	-0.118
	CaSO4	4.667 e-03	4.839e-03	-2.331	-2.315	0.016
	CaCO3	4.400e-03	4.562e-03	-2.357	-2.341	0.016
	CaF+	5.619e-06	4.280e-06	-5.250	-5.369	-0.118
	CaPO4-	2.120e-07	1.615e-07	-6.674	-6.792	-0.118
	CaHCO3+	9.685e-08	7.406e-08	-7.014	-7.130	-0.117
	CaHPO4	6.687e-12	6.933e-12	-11.175	-11.159	0.016
	CaHSO4+	2.580e-15	1.965e-15	-14.588	-14.707	-0.118
	CaH2PO4+	5.804e-19	4.421e-19	-18.236	-18.355	-0.118
01	Canzr04+	4.399e-03		201200		
Cl	C1-	4.399e-03	3.232e-03	-2.357	-2.491	-0.134
		3.986e-22	3.036e-22	-21.399	-21.518	-0.118
	PbCl+	1.914e-24	1.985e-24	-23.718	-23.702	0.016
	PbC12		4.701e-27	-26.210	-26.328	-0.118
	PbC13-	6.172e-27		-28.709	-29.182	-0.473
	PbC14-2	1.954e-29	6.577e-30	-20.709	-29.102	-0.475
Cu(1)		8.340e-22		01 050	21, 220	0 150
	Cu+	8.340e-22	5.911e-22	-21.079	-21.228	-0.150
Cu (2)		3.167e-07				0 4 7 7
	Cu (OH) 4 - 2		7.907e-08	-6.629	-7.102	-0.473
	Cu (OH) 3-	4.148e-08	3.160e-08	-7.382	-7.500	-0.118
	Cu (OH) 2	4.032e-08	4.181e-08	-7.394	-7.379	0.016
	CuOH+	2.155e-15	1.596e-15	-14.667	-14.797	-0.130
	Cu+2	3.550e-20	1.272e-20	-19.450	-19.895	-0.446
	CuSO4	1.643e-20	1.704e-20	-19.784	-19.769	0.016
F		2.489e-04				
-	F-	2.389e-04	1.746e-04	-3.622	-3.758	-0.136
	_ CaF+	5.619e-06	4.280e-06	-5.250	-5.369	-0.118
	NaF	4.429e-06	4.593e-06	-5.354	-5.338	0.016
	MgF+	1.511e-09	1.151e-09	-8.821	-8.939	-0.118
	mAt +	1.0110 09	1.1010 00	5.044		

	BF (OH) 3-	2.569e-13	1.957e-13	-12.590	-12,708	-0.118	
	HF	1.611e-14	1.670e-14	-13.793	-13.777	0.016	
	HF2 -	1.307e-17	9.952e-18	-16.884	-17.002	-0.118	
		3.897e-22	2.969e-22	-21.409	-21.527	-0.118	
	BF2 (OH) 2-		4.973e-28	-27.319	-27.303	0.016	
	Alf3	4.797e-28					
	AlF2+	3.011e-28	2.294e-28	-27.521	-27.639	-0.118	
	Alf4-	4.524e-29	3.446e-29	-28.344	-28.463	-0.118	
	AlF+2	8.335e-30	2.806e-30	-29.079	-29.552	-0.473	
	AlF5-2	2.908e-31	9.790e-32	-30.536	-31.009	-0.473	
	BF30H-	7.551e-33	5.752e-33	-32.122	-32.240	-0.118	
	AlF6-3	2.565e-34	2.215e-35	-33.591	-34.655	-1.064	
	BF4-	0.000e+00	0.000e+00	-42.361	-42.479	-0.118	
	SiF6-2	0.000e+00	0.000e+00	-51.211	-51.684	-0.473	
77 / ^ \	3110-2	9.812e-38	010000100	041222	02110-		
H(0)		4.906e-38	5.087e-38	-37.309	-37.294	0.016	
	H2		5.0076-30	-37.303	-3(+2)1	0.010	
K		3.114e-02	0 4 9 0	1 536	1 (70	0 1 7 4	۰,
	K+	2.911e-02	2.139e-02	-1.536	-1.670	-0.134	
	KSO4 -	1.128e-03	8.591e-04	-2.948	-3.066	-0.118	
	KOH	8.971e-04	9.301e-04	-3.047	-3.031	0.016	
	KHPO4 -	2.315e-13	1.763e-13	-12.635	-12,754	-0.118	
Mg		2.897e-06					•
- <u>-</u> -	MgOH+	2.326e-06	1.771e-06	-5.633	-5.752	-0.118	
	Mg+2	3.410e-07	1.264e-07	-6.467	-6.898	-0.431	
	MgSO4	1.466e-07	1.520e-07	-6.834	-6.818	0.016	
		8.236e-08	8.539e-08	-7.084	-7.069	0.016	
	MgCO3		1.151e-09	-8.821	-8,939	-0.118	
	MgF+	1.511e-09			-11.142	-0.118	
	MgPO4 -	9.469e-12	7.213e-12	-11.024		-0.118	
	MgHCO3+	3.648e-12	2.779e-12	-11.438	-11.556		
	MgHPO4	2.994e-16	3.104e-16	-15.524	-15.508	0.016	
	MgH2PO4+	2.447e-23	1.864e-23	-22.611	-22.730	-0.118	
N(5)	-	1.422e-03					
	NO3-	1.422e-03	1.024e-03	-2.847	-2.990	-0.143	
	PbNO3+	6.486e-23	4.941e-23	-22.188	-22.306	-0.118	
Na	100001	6.623e-02					
ING	Mai	6.009e-02	4.572e-02	-1.221	-1.340	-0.119	
	Na+	3.654e-03	3.789e-03	-2.437	-2.422	0.016	
	NaOH			-2.437	-2.820	-0.118	
	NaSO4 -	1.988e-03	1.514e-03			-0.118	
	NaCO3-	4.966e-04	3.783e-04	-3.304			
	NaF	4.429e-06	4.593e-06	-5.354	-5.338	0.016	
	NaHCO3	4.844e-08	5.023e-08	-7.315	-7.299	0.016	
	NaHPO4 -	4.949e-13	3.769e-13	-12.306	-12.424	-0.118	
0(0)		1.899e-22					
	02	9.497e-23	9.847e-23	-22.022	-22.007	0.016	
Р	•-	2.123e-07					
-	CaPO4-	2.120e-07	1.615e-07	~6.674	-6.792	-0.118	
	PO4-3	2.759e-10	1.849e-11	-9.559	-10.733	-1.174	
		1.406e-11	4.228e-12	-10.852	-11.374	-0.522	
	HPO4-2		4.228e-12 7.213e-12	-11.024	-11.142	-0.118	
	MgPO4 -	9.469e-12			-11.142	0.016	
	CaHPO4	6.687e-12	6.933e-12	-11.175			
	NaHPO4 -	4.949e-13	3.769e-13	-12.306	-12.424	-0.118	
	KHPO4 -	2.315e-13	1.763e-13	-12.635	-12.754	-0.118	
	MgHPO4	2.994e-16	3.104e-16	-15.524	-15.508	0.016	
	H2PO4-	7.762e-18	5.820e-18	-17.110	-17.235	-0.125	
	CaH2PO4+	5.804e-19		-18.236	-18.355	-0.118	
	MgH2PO4+	2.447e-23	1.864e-23	-22.611	-22.730	-0.118	
Pb	mgn2F03F	4.856e-08					
FD			1.610e-08	-7.320	-7.793	-0.473	
	Pb (OH) 4-2	4./020-00	7.0106-00	1. LUZU			

	Pb (OH) 3 -	7.356e-10	5.603e-10	-9.133	-9,252	-0.118
	Pb (OH) 2	3.753e-12	3.891e-12	-11.426	-11.410	0.016
	PbOH+	1.047e-15	7.975e-16	-14.980	-15.098	-0.118
	Pb (CO3) 2-2	3.113e-16	1.048e-16	-15.507	-15.980	-0.473
	PbCO3	4.690e-17	4.863e-17	-16.329	-16.313	0.016
	PbSO4	1.270e-20	1.316e-20	-19.896	-19.881	0.016
	Pb+2	9.687e-21	3.261e-21	-20.014	-20.487	-0.473
	Pb (SO4) 2-2	1.473e-21	4.959e-22	-20.832	-21.305	-0.473
	PbCl+	3.986e-22	3.036e-22	-21.399	-21,518	-0.118
		6.486e-23	4.941e-23	-22.188	-22.306	-0.118
	PbNO3+		4.941e-23 5.060e-24		-23.296	-0.118
	PbHCO3+	6.643e-24		-23.178		
	PbC12	1.914e-24	1.985e-24	-23.718	-23.702	0.016
	PbCl3-	6.172e-27	4.701e-27	-26.210	-26.328	-0.118
	PbCl4-2	1.954e-29	6.577e-30	-28.709	-29.182	-0.473
	Pb2OH+3	6.745e-34	5.822e-35	-33.171	-34.235	-1.064
S(6)		2.985e-02				
	SO4-2	2.203e-02	7.178e-03	-1.657	-2.1.44	-0.487
	CaSO4	4.667e-03	4.839e-03	-2.331	-2.315	0.016
	NaSO4-	1.988e-03	1.514e-03	-2.702	-2,820	-0.118
	KSO4-	1.128e-03	8.591e-04	-2.948	-3.066	-0.118
	SrSO4	3.603e-05	3.735e-05	-4.443	-4.428	0.016
	BaSO4	1.136e-06	1.178e-06	-5.945	-5.929	0.016
	MgSO4	1.466e-07	1.520e-07	-6.834	-6.818	0.016
	HSO4-	5.623e-14	4.283e-14	-13.250	-13.368	-0.118
	CaHSO4+	2.580e-15	1.965e-15	-14.588	-14.707	-0.118
	CuSO4	1.643e-20	1.704e-20	-19.784	-19.769	0.016
	PbSO4	1.270e-20	1.316e-20	-19.896	-19.881	0.016
		1.473e-21	4.959e-22		-21.305	-0.473
	Pb (SO4) 2-2		3.332e-32	-31.359	-31.477	-0.118
	A1SO4+	4.375e-32				-0.118
	Al (SO4) 2-	9.347e-33	7.119e-33		-32.148	
	AlHSO4+2	0.000e+00	0.000e+00	-45.195	-45.668	-0.473
Si		9.880e-05			4 200	0 110
	H3S104-	5.469e-05	4.166e-05		-4.380	-0.118
	H2SiO4-2	4.408e-05	1.484e-05		-4.829	-0.473
	H4SiO4	3.472e-08	3.600e-08		-7.444	
	SiF6-2	0.000e+00	0.000e+00	-51.211	-51.684	-0.473
Sr		1.619e-04		4 955	4 5 6 7	0 450
	Sr+2	8.813e-05		-4.055	-4.507	
	SrSO4	3.603e-05	3.735e-05	-4.443	-4.428	
	SrOH+	2.640e-05	2.002e-05	-4.578	-4.699	
	SrCO3	1.136e-05	1.178e-05	-4.944		0.016
	SrHCO3+	7.927e-10	6.061e-10	-9.101	-9.217	-0.117
		Satu	ration indi	ces		
	Phase	SI log I	AP log KT			
	Al(OH)3(a)	-5.11 6.	54 11.65	Al (OH) 3		
	Albite	-9.22 -4.				
	Alunite	-25.86 -25.	65 0.21	KA13 (SO4) 2	(OH) 6	
					/ -	
	Anglesite			CaSO4		•
	Anhydrite				1	
	Anorthite			CaAl2Si2O8)	
	Aragonite					
	Barite		63 -10.19			CT010 (017) 0
	Ca-Montmor:	illonite -17.24	-8.15 9.		A12.33513.	0/010 (OH) Z
	Calcite	2.94 -5.	48 -8.42	CaCO3		

<u>د</u>

Celestite	-0.03	-6.65	-6.62	SrSO4
Cerrusite	-10.27	-23.55	-13.29	PbC03
Chalcedony	-3.74	-7.44	-3.70	SiO2
Chlorite(14A)	14.01	87.25	73.24	Mg5Al2Si3O10 (OH) 8
Chrysotile	9.20	43.02	33.82	Mg3Si2O5 (OH) 4
CO2 (g)	-11.06	-29.26	-18.20	CO2
Dolomite	1.34	-15.45	-16.79	CaMg(CO3)2
Fluorite	0.83	-9.93	-10.76	CaF2
Gibbsite	-2.31	6.54	8.84	Al (OH) 3
Gypsum	0.02	-4.57	-4.59	CaSO4:2H2O
	-34.20			
Hydroxyapatite	8.45	-31.19	-39.64	Ca5 (PO4) 30H
				K0.6Mg0.25Al2.3Si3.5O10(OH)2
K-feldspar	-6.82	-4.35	2.47	KAlSi3O8 KAl3Si3O10 (OH) 2
Kaolinite	-10.38	-1.81	8.57	A12Si2O5 (OH) 4
	-19.11			
				Pb (OH) 2
	-3.27			
Sepiolite				
Sepiolite(d)	-2.39	16.27	18.66	Mg2Si3O7.5OH:3H2O
· · ·	-4.62			
Strontianite	1.71	-7.57	-9.28	SrC03
Talc				Mg3Si4O10 (OH) 2
Witherite	-0.94	-9.55	-8.61	BaCO3

 $\mathbf{1}_{1}$

1 A. A. A.

End of simulation.

Reading input data for simulation 2.

End of run.

Reading data base.

```
SOLUTION_MASTER_SPECIES
SOLUTION_SPECIES
PHASES
EXCHANGE_MASTER_SPECIES
EXCHANGE_SPECIES
SURFACE_MASTER_SPECIES
SURFACE_SPECIES
END
```

Reading input data for simulation 1.

SOLUTION 1 Cell 3B temp 17 pН 12.52 pe 4 redox pe units mg/1 density 1 **A**1 0.97 В 0.26 Ва 0.26 Br 2.6 C(4) 45Ò Ca 760 C1 60 F 3.1 ĸ 350 Mg 0.1 N(5) 22.3 Na 125 charge Mo1/lP 2.11e-07 Pb 0.01 S(6) 1400 8.2 Si \mathbf{Sr} 5.1

Beginning of initial solution calculations.

Initial solution 1. Cell 3B

-----Solution composition------

	 _	_	_	_	 _	_	 	ĺ

Elements	Molality	Moles
Al	3.607e-05	3.607e-05
В	2.413e-05	2.413e-05
Ва	1.899e-06	1.899e-06
Br	3.264e-05	3.264e-05
C(4)	7.398e-03	7.398e-03
Ca	1.902e-02	1.902e-02
Cl	1.698e-03	1.698e-03

F	1.637e-04	1.637e-04			
K	8.980e-03	8.980e-03			
Mg	4.126e-06	4.126e-06			
N(5)	1.597e-03	1.597e-03			
Na	2.603e-02		Charge bal	ance	
P	2.117e-07		-		
Pb	4.842e-08	4.842e-08			
S(6)	1.462e-02	1.462e-02			-
Si	1.369e-04	1.369e-04			
Sr	1.462e-02 1.369e-04 5.839e-05	5.839e-05			
	Descrip	tion of solu	ution		
	pH =	12.520			
		4.000			
Acti		0.998			
	Ionic strength =				
Mass	of water (kg) =	1.000e+00			
Total alka	linity (eq/kg) =	4.056e-02			
Tota	1 CO2 (mol/kg) =	7.398e-03			
Temper	rature (deg C) =	17.000			
Electrica	l balance (eq) =	-1.340e-15			
	Iterations =				
	Total H =	1.110385e+0	2		
	Total O =	5.561788e+0	1		
	Distrik	wtion of an	00100		
			Log		
Species			Log		Log
	Molality	Activity			
OH-	Molality 2.240e-02	1.760e-02	Molality -1.650	Activity	Gamma
-		1.760e-02 3.020e-13	Molality -1.650 -12.444	Activity -1.754 -12.520	Gamma -0.105 -0.076
OH-	2.240e-02	1.760e-02 3.020e-13	Molality -1.650 -12.444	Activity	Gamma -0.105 -0.076
ОН- Н+ Н2О	2.240e-02 3.599e-13 5.551e+01 3.607e-05	1.760e-02 3.020e-13 9.984e-01	Molality -1.650 -12.444 -0.001	Activity -1.754 -12.520 -0.001	Gamma -0.105 -0.076 0.000
ОН- Н+ Н2О	2.240e-02 3.599e-13 5.551e+01 3.607e-05	1.760e-02 3.020e-13 9.984e-01 2.887e-05	Molality -1.650 -12.444 -0.001 -4.443	Activity -1.754 -12.520 -0.001 -4.540	Gamma -0.105 -0.076 0.000 -0.097
ОН- Н+ Н2О	2.240e-02 3.599e-13 5.551e+01 3.607e-05	1.760e-02 3.020e-13 9.984e-01 2.887e-05	Molality -1.650 -12.444 -0.001 -4.443 -11.303	Activity -1.754 -12.520 -0.001 -4.540 -11.295	Gamma -0.105 -0.076 0.000 -0.097 0.007
OH- H+ H2O Al (OH) 4-	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713	Gamma -0.105 -0.076 0.000 -0.097
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.097 -0.387
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.097 -0.387 0.007
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.097 -0.387
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055	Gamma -0.105 -0.076 0.000 -0.097 -0.097 -0.387 0.007
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+ AlF2+ AlF4-	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27 7.097e-27	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27 5.680e-27	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062 -26.149	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055 -26.246	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.387 0.007 -0.097
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+ AlF2+ AlF4- AlF4- AlF+2	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27 7.097e-27 5.438e-28 2.320e-28	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27 5.680e-27 4.352e-28	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062 -26.149 -27.265	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055 -26.246 -27.361	Gamma -0.105 -0.076 0.000 -0.097 -0.097 -0.387 0.007 -0.097 -0.097
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+ AlF4- AlF4- AlF4- AlF+2 AlF5-2	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27 7.097e-27 5.438e-28 2.320e-28 2.125e-30	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27 5.680e-27 4.352e-28 9.518e-29	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062 -26.149 -27.265 -27.635	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055 -26.246 -27.361 -28.021	Gamma -0.105 -0.076 0.000 -0.097 -0.097 -0.387 0.007 -0.097 -0.097 -0.097 -0.387
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+ AlF4- AlF4- AlF4- AlF5-2 AlSO4+	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27 7.097e-27 5.438e-28 2.320e-28 2.125e-30 1.283e-30	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27 5.680e-27 4.352e-28 9.518e-29 8.718e-31	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062 -26.149 -27.265 -27.635 -29.673	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055 -26.246 -27.361 -28.021 -30.060	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.387 0.007 -0.097 -0.387 -0.387
OH- H+ H2O Al (OH) 4- Al (OH) 3 Al (OH) 2+ AlOH+2 AlF3 AlF2+ AlF4- AlF4- AlF4- AlF+2 AlF5-2	2.240e-02 3.599e-13 5.551e+01 3.607e-05 3.607e-05 4.982e-12 2.421e-17 3.792e-24 8.663e-27 7.097e-27 5.438e-28 2.320e-28 2.125e-30	1.760e-02 3.020e-13 9.984e-01 2.887e-05 5.069e-12 1.938e-17 1.556e-24 8.813e-27 5.680e-27 4.352e-28 9.518e-29 8.718e-31 1.026e-30	Molality -1.650 -12.444 -0.001 -4.443 -11.303 -16.616 -23.421 -26.062 -26.149 -27.265 -27.635 -29.673 -29.892	Activity -1.754 -12.520 -0.001 -4.540 -11.295 -16.713 -23.808 -26.055 -26.246 -27.361 -28.021 -30.060 -29.989	Gamma -0.105 -0.076 0.000 -0.097 0.007 -0.097 -0.387 -0.097 -0.387 -0.387 -0.387 -0.387

1.276e-34

0.000e+00

1.930e-05

1.177e-08

5.343e-13

2.176e-21

1.042e-31

0.000e+00

9.468e-34

0.000e+00

2.412e-05

1.157e-08

6.676e-13

2.718e-21

1.302e-31

0.000e+00

2.413e-05

1.899e-06

-33.894

-43.588

-4.714

-7.929

-12.272

-20.662

-30.982

-40.792

-33.024

-43.201

-4.618

-7.937

-12.175

-20.566

-30.885

-40.695

-0.870

-0.387

-0.097

0.007

-0.097

-0.097

-0.097

-0.097

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A1F6-3

H2BO3-

H3BO3

BF3OH-

BF4 -

AlHSO4+2

BF (OH) 3-

BF2 (OH) 2-

Ba

	Ba+2	8.846e-07	3.686e-07	-6.053	-6.433	-0.380	
	BaSO4	8.151e-07	8.292e-07	-6.089	-6.081	0.007	
	BaCO3	1.479e-07	1.504e-07	-6.830	-6.823	0.007	
	BaOH+	5.160e-08	4.130e-08	-7.287	-7.384	-0.097	
	BaHCO3+	2.452e-11	1.962e-11	-10.611	-10.707	-0.097	
Br	Duncos.	3.264e-05					
101	Br-	3.264e-05	2.543e-05	-4.486	-4.595	-0.108	
C(4)	D1	7.398e-03					
C(4)	CaCO3	4.919e-03	5.004e-03	-2.308	-2.301	0.007	
	CO3-2	2.179e-03	9.276e-04	-2.662	-3.033	-0.371	
	NaCO3-	2.835e-04	2.269e-04	-3.548	-3.644	-0.097	
	HCO3-	8.844e-06	7.143e-06	-5.053	-5.146	-0.093	
	SrC03	7.119e-06	7.243e-06	-5.148	-5.140	0.007	
	CaHCO3+	3.590e-07	2.900e-07	-6.445	-6.538	-0.093	
	MgCO3	2.883e-07	2.933e-07	-6.540	-6.533	0.007	
	BaCO3	1.479e-07	1.504e-07	-6.830	-6.823	0.007	
	NaHCO3	7.850e-08	7.986e-08	-7.105	-7.098	0.007	ч,
	SrHCO3+	1.594e-09	1.287e-09	-8.798	-8.890	-0.093	
	MgHCO3+	3.802e-11	3.043e-11	-10.420	-10.517	-0.097	
	BaHCO3+	2.452e-11	1.962e-11	-10.611	-10.707	-0.097	
	CO2	5.373e-12	5.467e-12	-11.270	-11.262	0.007	
	Pb(CO3)2-2		2.928e-14	-13.147	-13.533	-0.387	
	PbCO3	1.235e-14	1.257e-14	-13.908	-13.901	0.007	
	PbCO3 PbHCO3+	5.527e-21	4.423e-21	-20.258	-20.354	-0.097	
<i>a</i> .	PDHC03+	1.902e-02	1,1250	201.000	20.001		
Ca	0-10	8.579e-03	3.678e-03	-2.067	-2.434	-0.368	
	Ca+2	4.919e-03	5.004e-03	-2.308	-2,301	0.007	
	CaCO3	2.998e-03	3.051e-03	-2.523	-2.516	0.007	
	CaSO4	2.522e-03	2.018e-03	-2.598	-2.695	-0.097	
	CaOH+	4.107e-06	3.287e-06	-5.386	-5.483	-0.097	
	CaF+	4,107e-08 3,590e-07	2.900e-07	-6.445	-6.538	-0.093	
	CaHCO3+	2.114e-07	1.692e-07	-6.675	-6.772	-0.097	
	CaPO4 -	2.479e-11	2.522e-11	-10.606	-10,598	0.007	•
	CaHPO4	6.151e-15	4.923e-15	-14.211	-14.308	-0.097	
	CaHSO4+	7.455e-18	5.967e-18	-17.128	-17.224	-0.097	
6 7	CaH2PO4+	1.698e-03	2.2016-10	17,140	17.001	••••	
Cl	C1	1.698e-03	1.337e-03	-2.770	-2.874	-0.104	
	Cl- PbCl+	4.230e-20	3.385e-20	-19.374	-19.470	-0.097	
	PbC1+ PbC12	4.230e-20 8.224e-23	8.367e-23	-22.085	-22.077	0.007	
		1.056e-25	8.449e-26	-24.976	-25.073	-0.097	
	PbCl3-	1.237e-28	5.076e-29	-27.908	-28.294	-0.387	
P	PbC14-2	1.637e-04		27.900			
F	P	1,582e-04	1.243e-04	-3.801	-3.906	-0.105	
	F-	4.107e-06	3.287e-06	-5.386	-5.483	-0.097	
	CaF+	1.398e-06	1.422e-06	~5.855	-5.847	0.007	
	NaF	3.312e-09	2.651e-09	-8.480	-8.577	-0.097	
	MgF+	6.676e-13	5.343e-13	-12.175	-12.272	-0.097	
	BF (OH) 3 -	4.802e-14	4.886e-14	-13.319	-13.311	0.007	
	HF		2.172e-17	-16.566	-16.663	-0.097	
	HF2-	2.714e-17 2.718e-21	2.172e-17 2.176e-21	-20.566	-20.662	-0.097	
	BF2 (OH) 2-		8.813e-27	-26.062	-26.055	0.007	
	Alf3	8.663e-27	5.680e-27	-26.062	-26.246	-0.097	
	AlF2+	7.097e-27	4.352e-28	-27.265	-27.361	-0.097	
	AlF4-	5.438e-28	4.352e-28 9.518e-29	-27.265	-28.021	-0.387	
	AlF+2	2.320e-28		-29.673	-30.060	-0.387	
	AlF5-2	2.125e-30	8.718e-31		-30.080	-0.097	
	BF30H-	1.302e-31	1.042e-31	-30.885	-30.982	-0.870	
	AlF6-3	9.468e-34	1.276e-34	-33.024	-33.074	-0.070	

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	BF4-	0.000e+00	0.000e+00	-40.695	-40.792	-0.097	
	SiF6-2	0.000e+00	0.000e+00	-49.236	-49.623	-0.387	
H(0)		1.377e-36	•••••				
H(0)		6.887e-37	7.007e-37	-36.162	-36.154	0.007	
	H2		1.0078-37	-30.102	-20.174	0.007	
ĸ		8.980e-03	c 000- 00	0.000	0 100	0 104	
	K+	8.669e-03	6.829e-03	-2.062	-2.166	-0.104	
	KSO4 -	2.331e-04	1.866e-04	-3.632	-3.729	-0.097	
	KOH	7.695e-05	7.828e-05	-4.114	-4.106	0.007	
	KHPO4 -	2.426e-13	1.942e-13	-12.615	-12.712	-0.097	
Mg		4.126e-06					
-	MgOH+	2.675e-06	2.141e-06	-5.573	-5.669	-0.097	
	Mg+2	8.462e-07	3.747e-07	-6.073	-6.426	-0.354	
	MgSO4	3.136e-07	3.190e-07	-6.504	-6.496	0.007	
	MgCO3	2.883e-07	2.933e-07	-6.540	-6.533	0.007	
		3.312e-09	2.651e-09	-8.480	-8.577	-0.097	
	MgF+	3.802e-11	3.043e-11	-10.420	-10.517	-0.097	
	MgHCO3+					-0.097	4
	MgPO4 -	2.905e-11	2.325e-11	-10.537	-10.634		
	MgHPO4	3.414e-15	3.474e-15	-14.467	-14.459	0.007	
	MgH2PO4+	9.671e-22	7.740e-22	-21.015	-21.111	-0.097	
N(5)		1.597e-03					
	NO3 -	1.597e-03	1.244e-03	-2.797	-2.905	-0.108	
	PbNO3+	1.793e-20	1.435e-20	-19.746	-19.843	-0.097	
Na		2.603e-02					
2.04	Na+	2.478e-02	1.988e-02	-1.606	-1.702	-0.096	
	NaSO4 -	5.304e-04	4.245e-04	-3.275	-3.372	-0.097	
		4.269e-04	4.343e-04	-3.370	-3,362	0.007	
	NaOH	2.835e-04	2.269e-04	-3.548	-3.644	-0.097	
	NaCO3 -					0.007	
	NaF	1.398e-06	1.422e-06	-5.855	-5.847		
	NaHCO3	7.850e-08	7.986e-08	-7.105	-7.098	0.007	
	NaHPO4 -	7.063e-13	5.653e-13	-12.151	-12.248	-0.097	
0(0)		3.699e-23					
	02	1.850e-23	1.882e-23	-22.733	-22.725	0.007	
P		2.117e-07					
-	CaPO4-	2.114e-07	1.692e-07	-6.675	-6.772	-0.097	
	PO4-3	1.507e-10	1.847e-11	-9.822	-10.734	-0.912	
	HPO4-2	3.707e-11	1.458e-11	-10.431	-10.836	-0.405	
	MgPO4 -	2,905e-11	2.325e-11	-10.537	-10.634	-0.097	
		2.905C 11 2.479e-11	2.522e-11	-10.606	-10.598	0.007	
	CaHPO4			-12.151		-0.097	
	NaHPO4-	7.063e-13	5.653e-13			-0.097	
	KHPO4 –	2.426e-13	1.942e-13	-12.615	-12.712	0.007	
	MgHPO4	3.414e-15	3.474e-15	-14.467	-14.459		
	H2PO4 -	9.308e-17	7.427e-17	-16.031	-16.129	-0.098	
	CaH2PO4+	7.455e-18	5.967e-18	-17.128	-17.224	-0.097	
	MgH2PO4+	9.671e-22	7.740e-22	-21.015	-21.111	-0.097	
Pb	-	4.842e-08					
	Pb(OH)4-2	4.529e-08	1.858e-08	-7.344	-7.731	-0.387	
	Pb (OH) 3-	3.066e-09	2,454e-09	-8.513	-8.610	-0.097	
	Pb (OH) 2	6.354e-11	6.464e-11	-10.197	-10.189	0.007	
			2.928e-14	-13.147	-13.533	-0.387	
	Pb(CO3)2-2		the second se		-13.299	-0.097	
	PbOH+	6.279e-14	5.026e-14	-13.202		0.007	
	PbCO3	1,235e-14	1.257e-14	-13.908	-13.901		
	PbSO4	1.934e-18	1.968e-18	-17.714	-17.706	0.007	
	Pb+2	1.900e-18	7.796e-19	-17.721	-18.108	-0.387	
	Pb(SO4)2-2	1.130e-19	4.635e-20	-18.947	-19.334	-0.387	
	PbC1+	4.230e-20	3.385e-20	-19.374	-19.470	-0.097	
	PbNO3+	1.793e-20	1.435e-20	-19.746	-19.843	-0.097	
	PbHCO3+	5.527e-21	4.423e-21	-20.258	-20.354	-0.097	
	* PUICA3+	5.52,6 21					

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	PbCl2	8.224e-23	8.367e-23	-22.085	-22.077	0.007
	PbCl3-	1.056e-25	8.449e-26	-24.976	-25.073	-0.097
	PbCl4-2	1.237e-28	5.076e-29	-27.908	-28.294	-0.387
		6.509e-30	8.772e-31	-29.186	-30.057	-0.870
~	Pb2OH+3		0.7720-31	-29.100	-20.027	
S(6)	1.462			1 0/15	0.040	0 202
	SO4-2	1.084e-02	4.488e-03	-1.965	-2.348	-0.383
	CaSO4	2.998e-03	3.051e-03	-2.523	-2.516	0.007
	NaSO4 -	5.304e-04	4.245e-04	-3.275	-3.372	-0.097
	KSO4 -	2.331e-04	1.866e-04	-3.632	-3.729	-0.097
	SrSO4	1.210e-05	1.231e-05	-4.917	-4.910	0.007
	BaSO4	8.151e-07	8.292e-07	-6.089	-6.081	0.007
	MgSO4	3.136e-07	3.190e-07	-6.504	-6.496	0.007
	HSO4 -	1.391e-13	1.113e-13	-12.857	-12.953	-0.097
	CaHSO4+	6.151e-15	4.923e-15	-14.211	-14.308	-0.097
	PbSO4	1.934e-18	1.968e-18	-17.714	-17.706	0.007
		1.130e-19	4.635e-20	-18.947	-19.334	-0.387
	Pb(SO4)2-2			-29.892	-29.989	-0.097
	AlSO4+	1.283e-30	1.026e-30			-0.097
	Al (SO4) 2-	1.752e-31	1.402e-31		-30.853	
	AlHSO4+2	0.000e+00	0.000e+00	-43.201	-43.588	-0.387
Si		9e-04				
	H3S104-	1.090e-04	8.720e-05		-4.059	-0.097
	H2SiO4-2	2.772e-05	1.137e-05		-4.944	-0.387
	H4SiO4	2.354e-07	2.395e-07	-6.628	-6.621	0.007
	SiF6-2	0.000e+00	0.000e+00	-49.236	-49.623	-0.387
Sr		9e-05				
	Sr+2	3.591e-05	1.549e-05	-4.445	-4.810	-0.365
	SrSO4	1.210e-05	1.231e-05			0.007
	SrCO3	7.119e-06	7.243e-06			0.007
	SrOH+	3.269e-06	2.627e-06			-0.095
		1.594e-09	1.287e-09			-0.093
	SrHCO3+	1.3946-09	1.2076-07	-0.750	0.000	0.000
			لالاست المستحدين			
		Satu	ration indi	ces		
						·
	Phase	SI log I	AP log KT		·	
	Al(OH)3(a)	-4.87 6.		Al (OH) 3		
	Albite	-7.57 -2.	58 5.00	NaAlSi308		
	Alunite	-24.64 -25.		KA13 (SO4) 2	(OH) 6	
	Anglesite	-12.62 -20.	.46 -7.83	PbSO4		
	Anhydrite		.78 -4.34	CaSO4		
	Anorthite		.30 27.10			
	Aragonite		.47 -8.29			
	Barite	1.33 -8.		BaSO4		
	Ca-Montmorillor				A12.33Si3.	67010 (OH) 2
				CaCO3		0,010(0,2
	Calcite		.47 - 8.44			
	Celestite		.16 -6.62			
	Cerrusite	-7.91 -21		PbCO3		
	Chalcedony		.62 -3.65	SiO2		
	Chlorite(14A)		.13 71.44	Mg5Al2Si3C		
	Chrysotile		.60 33.22	Mg3Si2O5(0)H)4	
	CO2 (g)	-9.89 -28	.07 -18.18	CO2		
	Dolomite	1.97 -14	.93 -16.90	CaMg(CO3)2	2	
	Fluorite	0.45 -10		CaF2		
	Gibbsite		.46 8.57	A1 (OH) 3		
	Gypsum		.78 -4.58	CaSO4:2H20)	
			.04 0.00	H2	-	
	H2 (g)	8.09 -31		Ca5 (PO4) 30	าน	
	Hydroxyapatite	0.09 -31		CUD (EO4) 30	***	

Illite	-10.16	2.57	12.73	K0.6Mg0.25Al2.3Si3.5O10(OH)2
K-feldspar	-5.37	-3.04	2.33	KAlSi308
K-mica	-4.01	9.89	13.90	KA13Si3O10(OH)2
Kaolinite	-8.46	-0.31	8.15	Al2Si2O5 (OH) 4
02 (g)	-19.80	66.08	85.88	02
Pb (OH) 2	-1.50	6.93	8.43	Pb (OH) 2
Quartz	-2.52	-6.62	-4.10	SiO2
Sepiolite	1.39	17.37	15.98	Mg2Si307.50H:3H2O
Sepiolite(d)	-1.29	17.37	18.66	Mg2Si307.50H:3H20
Si02(a)	-3.84	~6.62	-2.78	SiO2
Strontianite	1.43	-7.84	-9.27	SrC03
Talc	7.03	29.36	22.34	Mg3Si4O10(OH)2
Witherite	-0.88	-9.47	-8.59	BaCO3

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End of simulation.

Reading input data for simulation 2.

End of run.

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Reading data base.
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```
SOLUTION MASTER_SPECIES
SOLUTION_SPECIES
PHASES
EXCHANGE MASTER_SPECIES
EXCHANGE_SPECIES
SURFACE_MASTER_SPECIES
SURFACE SPECIES
END
```

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Reading input data for simulation 1.
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```

```
SOLUTION 1 Cell 4B
          temp 19
          pН
               12.44
               4
          pe
          redox pe
          units mg/l
          density
                    1
          Al
               0.74
          в
               0.23
               0.32
          Ba
               2.9
          Br
          C(4) 450
               800
          Ca
          Cl
               62
          F
               3.8
               350
          ĸ
               0.08
          Mg
          N(5) 21.5
               115
          Na
                    charge
                         Mol/l
               2.11e-07
          Ρ
          Pb
               0.01
          S(6) 1470
          Si
               5
          Sr
               5,5
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Beginning of initial solution calculations.
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Initial solution 1. Cell 4B

-----Solution composition-----

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Elements	Molality	Moles
Al	2.752e-05	2.752e-05
В	2.135e-05	2.135e-05
Ba	2.338e-06	2.338e-06
Br	3.641e-05	3.641e-05
C(4)	7.399e-03	7.399e-03
Ca	2.003e-02	2.003e-02
C1	1.755e-03	1.755e-03

F	2.007e-04	1	2.007e-04		
К	8.980e-03	3	8.980e-03		
Mg	3.301e-00	5	3.301e-06		
N (5)	1.540e-0	3	1.540e-03		
Na	2.465e-0	2	2.465e-02	Charge	balance
P	2.117e-0	7	2.117e-07		
Pb	4.842e-0	8	4.842e-08		
S(6)	1.535e-0	2	1.535e-02		
Si	8.349e-0	5	8.349e-05		
Sr	6.298e-0	5	6.298e-05		
 	Desc	rip	tion of solu	ution	
	pH	=	12.440		
	pe		4.000		
	Activity of water	=	0.998		
	Ionic strength	=	7.573e-02		
	Mass of water (kg)		1.000e+00		
Total	alkalinity (eq/kg)		3.966e-02		
	Total CO2 (mol/kg)	=	7.399e-03		

Temperature (deg C) = 19.000Electrical balance (eq) = -1.732e-12Iterations = 10 Total H = 1.110375e+02 Total 0 = 5.561959e+01

-----Distribution of species-----

	Species	Molality	Activity	Log Molality	Log Activity	Log Gamma
		-	-	-	_	
	OH-	2.197e-02	1.723e-02	-1.658	-1.764	-0.106
	H+	4.331e-13	3.631e-13	-12.363	-12.440	-0.077
	H2O	5.551e+01	9.984e-01	-0.001	-0.001	0.000
Al	,	2.752e-05				
	Al (OH) 4-	2.752e-05	2.199e-05	-4.560	-4,658	-0.097
	Al (OH) 3	4.477e-12	4.556e-12	-11.349	-11.341	0.008
	Al (OH) 2+	2.229e-17	1.781e-17	-16.652	-16.749	-0.097
÷	AlOH+2	3.487e-24	1.422e-24	-23.458	-23.847	-0.389
	Alf3	1.552e-26	1.579e-26	-25.809	-25.802	0.008
	AlF2+	1.041e-26	8.321e-27	-25.982	-26.080	-0.097
	AlF4-	1.191e-27	9.520e-28	-26.924	-27.021	-0.097
	AlF+2	2.771e-28	1.130e-28	-27.557	-27.947	-0.389
	A1F5-2	5.681e-30	2.317e-30	-29.246	-29.635	-0.389
	AlSO4+	1.300e-30	1.039e-30	-29.886	-29.983	-0.097
	Al+3	3.784e-31	7.731e-32	-30.422	-31.112	-0.690
	Al (SO4)2-	1.839e-31	1.470e-31	-30.735	-30.833	-0.097
	AlF6-3	2.986e-33	3.969e-34	-32.525	-33.401	-0.876
	AlHSO4+2	0.000e+00	0.000e+00	-43.107	-43.496	-0.389
в		2.135e-05				
	H2BO3-	2.133e-05	1.705e-05	-4.671	-4.768	-0.097
	H3BO3	1.182e-08	1.203e-08	-7.927	-7.920	0.008
	BF (OH) 3 -	8.524e-13	6.812e-13	-12.069	-12.167	-0.097
	BF2 (OH) 2-	5.078e-21	4.058e-21	-20.294	-20.392	-0.097
	BF3OH-	3.435e-31	2.745e-31	-30.464	-30.561	-0.097
	BF4-	0.000e+00	0.000e+00	-40.109	-40.206	-0.097
Ba		2.338e-06				

		_	0000 00	4 500- 07	E 060	6 746	-0.383
	Ba+2		088e-06	4.509e-07	-5.963	-6.346 -5.983	0.008
	BaSO4		022e-06	1.040e-06	-5.991		
	BaCO3		748e-07	1.778e-07	-6.758	-6.750	0.008
	BaOH+		257e-08	4.201e-08	-7.279	-7.377	-0.097
	BaHCO3+		402e-11	2.719e-11	-10.468	-10.566	-0.097
Br		3.641e-05					
	Br-	3.	.641e-05	2.831e-05	-4.439	-4.548	-0.109
C(4)		7.399e-03	3				
	CaCO3	5.	.069e-03	5.158e-03	-2.295	-2.288	0.008
	CO3 - 2	2.	035e-03	8.612e-04	-2.691	-3.065	-0.373
	NaCO3-	2.	.775e-04	2.217e-04	-3.557	-3.654	-0.097
	HCO3 -	9.	421e-06	7.599e-06	-5.026	-5.119	-0.093
	SrC03		.541e-06	7.673e-06	-5.123	-5.115	0.008
	CaHCO3+		.297e-07	3.466e-07	-6.367	-6.460	-0.093
	MqCO3		.188e-07	2.227e-07	-6.660	-6.652	0.008
	BaCO3		.748e-07	1.778e-07	-6.758	-6.750	0.008
	NaHCO3		.908e-08	8.047e-08	-7.102	-7.094	0.008
			.908e-08	1.577e-09	-8.709	-8.802	-0.093
	SrHCO3+		.955e-09	2.719e-11	-10.468	-10.566	-0.097
	BaHCO3+				-10.488	-10.588	-0.097
	MgHCO3+	-	.231e-11	2.582e-11	-10.491	-10.500	0.008
	CO2		.646e-12	6.763e-12			~0.389
	Pb(CO3)2-2		.269e-13	5.175e-14	-12.897	-13.286	
	PbC03		.351e-14	2.392e-14	-13.629	-13.621	0.008
	PbHCO3+		.207e-20	9.648e-21	-19.918	-20.016	-0.097
Ca		2.003e-0					
	Ca+2		.304e-03	3.967e-03	-2.031	-2.402	-0.370
	CaCO3		.069e-03	5.158e-03	-2.295	-2.288	0.008
	CaSO4		.381e-03	3.440e-03	-2.471	-2.463	0.008
	CaOH+		.265e-03	1.810e-03	-2.645	-2.742	-0.097
	CaF+		.685e-06	4.543e-06	-5.245	-5.343	-0.097
	CaHCO3+	4	.297e-07	3.466e-07	-6.367	-6.460	-0.093
	CaPO4 -	2	.115e-07	1.690e-07	-6.675	-6.772	-0.097
	CaHPO4	2	.860e-11	2.911e-11	-10.544	-10.536	0.008
	CaHSO4+	8	.534e-15	6.820e-15	-14.069	-14.166	-0.097
	CaH2PO4+	1	.025e-17	8.192e-18	-16.989	-17.087	-0.097
Cl		1.755e-0					
	Cl-		755e-03	1.380e-03	-2.756	-2.860	-0.104
	PbCl+		.439e-20	7.543e-20	-19.025	-19.122	-0.097
	PbC12		817e-22	1.849e-22	-21.741	-21.733	0.008
	PbCl3-		.442e-25	1.952e-25	-24.612	-24.710	-0.097
	PbC13- PbC14-2		.014e-28	1.229e-28	-27.521	-27.910	-0.389
P	EDCT4-7	2.007e-0			2022		
F	F-		.934e-04	1.517e-04	-3.714	-3.819	-0.106
			5.685e-06	4.543e-06	-5.245	-5.343	-0.097
	CaF+		L.615e-06	1.643e-06	-5.792	-5.784	0.008
	NaF		3.335e-09	2.665e-09	-8.477	-8.574	-0.097
	MgF+			6.812e-13	-12.069	-12.167	-0.097
	BF (OH) 3 -		3.524e-13	7.423e-14		-13.129	0.008
	HF		7.295e-14			-16.387	-0.097
	HF2-		5.136e-17	4.105e-17			-0.097
	BF2 (OH) 2-		5.078e-21	4.058e-21		-20.392	0.008
	Alf3		1.552e-26	1.579e-26		-25.802	
	AlF2+		1.041e-26	8.321e-27		-26.080	-0.097
	AlF4-		1.191e-27	9.520e-28		-27.021	-0.097
	AlF+2		2.771e-28	1.130e-28		-27.947	-0.389
	AlF5-2		5.681e-30	2.317e-30		-29.635	-0.389
	BF3OH-		3.435e-31	2.74 5e-31		-30.561	-0.097
	AlF6-3	:	2.986e-33	3.969e-34	-32.525	-33.401	-0.876

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	BF4-	0.000e+00	0.000e+00	-40.109	-40.206	-0.097
	SiF6-2	0.000e+00	0.000e+00	-48.644	-49.033	-0.389
H(0)		1.950e-36				
	H2	9.748e-37	9.919e-37	-36.011	-36.004	0.008
ĸ		8.980e-03				
	K+	8.669e-03	6.817e-03	-2.062	-2.166	-0.104
	KSO4 -	2.479e-04	1.981e-04	-3.606	-3.703	-0.097
	KOH	6.387e-05	6.500e-05	-4.195	-4.187	0.008
	KHPO4 -	2.496e-13	1.994e-13	-12.603	-12.700	-0.097
	KHPU4-	3.301e-06	1.5510 15	12.000	121700	01091
Mg	M-077	2.136e-06	1.707e-06	-5.670	-5.768	-0.097
	MgOH+		2.971e-07	-6.171	-6.527	-0.356
	Mg+2	6.745e-07				
	MgSO4	2.691e-07	2.738e-07	-6.570	-6,563	0.008
	MgCO3	2.188e-07	2.227e-07	-6.660	-6.652	0.008
	MgF+	3.335e-09	2.665e-09	-8.477	-8.574	-0.097
	MgHCO3+	3.231e-11	2.582e-11	-10.491	-10.588	-0.097
	MgPO4 -	2.137e-11	1.708e-11	-10.670	-10.768	-0.097
	MgHPO4	2.897e-15	2.948e-15	~14.538	-14.531	0.008
	MgH2PO4+	9.778e-22	7.814e-22	-21.010	-21.107	-0.097
N(5)	2	1.540e-03				
	NO3 -	1.540e-03	1.198e-03	-2.812	-2.922	-0.109
	PbNO3+	3.543e-20	2.831e-20	-19.451	-19.548	-0.097
Na	LORODI	2.465e-02				
Ma	Na+	2.351e-02	1.883e-02	-1.629	-1.725	-0.096
		5,228e-04	4.178e-04	-3.282	-3.379	-0.097
	NaSO4 -	3.362e-04	3.421e-04	-3.473	-3.466	0.008
	NaOH		2.217e-04	-3.557	-3.654	-0.097
	NaCO3-	2.775e-04				0.008
	NaF	1.615e-06	1.643e-06	-5.792	-5.784	
	NaHCO3	7.908e-08	8.047e-08	-7.102	-7.094	0.008
	NaHPO4 -	6.894e-13	5.509e-13	-12.162	-12.259	-0.097
0(0)		8.770e-23				
	02	4.385e-23	4.462e-23	-22.358	-22.350	0.008
P		2.117e-07				
	CaPO4-	2.115e-07	1.690e-07	-6.675	-6.772	-0.097
	PO4-3	1.365e-10	1.648e-11	-9.865	-10.783	-0.918
	HPO4-2	3.839e-11	1.500e-11	-10.416	-10.824	-0.408
	CaHPO4	2.860e-11	2.911e-11	-10.544	-10.536	0.008
	MgPO4 -	2.137e-11	1.708e-11	-10.670	-10.768	-0.097
	NaHPO4 -	6.894e-13	5.509e-13	-12.162	-12.259	-0.097
	KHPO4 -	2.496e-13	1.994e-13	-12.603	-12.700	-0.097
	MgHPO4	2.897e-15	2.948e-15	-14.538	-14.531	0.008
	H2PO4 -	1.140e-16	9.080e-17	-15.943	-16.042	-0.099
		1.025e-17	8.192e-18	-16.989	-17.087	-0.097
	CaH2PO4+		7.814e-22		-21.107	-0.097
	MgH2PO4+	9.778e-22	1.0148-22	-21.010	~21.107	-0.051
Pb		4.842e-08			a abo	0 200
	Pb (OH) 4-2	4.471e-08	1.824e-08	-7.350	-7.739	-0.389
	Pb (OH) 3 -	3.622e-09	2.895e-09	-8.441	-8.538	-0.097
	Pb (OH) 2	9.010e-11	9.169e-11	-10.045	-10.038	0.008
	Pb(CO3)2-:		5.175e-14	-12.897	-13.286	-0.389
	PbOH+	1.072e-13	8.570e-14	-12.970	-13.067	-0.097
	PbCO3	2.351e-14	2.392e-14	-13.629	-13.621	0.008
	PbSO4	4.065e-18	4.136e-18	-17.391	-17.383	0.008
	Pb+2	3.919e-18	1.598e-18	-17.407	-17.796	-0.389
	Pb (SO4) 2-3		9.990e-20	-18.611	-19.000	-0.389
	PbC1+	9.439e-20	7.543e-20	-19.025	-19.122	-0.097
	PbNO3+	3.543e-20	2.831e-20	-19.451	-19.548	-0.097
		1.207e-20	9.648e-21	-19.918	-20.016	-0.097
	PbHCO3+	1.2076-20	J. UIUG-41			*

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$ \begin{array}{c} \mathrm{GA-2} & 1.119-02 & 4.602e-03 & -1.951 & -2.337 & -0.386 \\ \mathrm{GaSO4} & 3.381e-03 & 3.404e-03 & -2.471 & -2.463 & 0.008 \\ \mathrm{NaSO4-} & 2.479e-04 & 1.981e-04 & -3.626 & -3.703 & -0.097 \\ \mathrm{KSO4-} & 2.479e-04 & 1.981e-04 & -3.606 & -3.703 & -0.097 \\ \mathrm{SrSO4} & 1.367e-05 & 1.391e-05 & -4.864 & -4.857 & 0.008 \\ \mathrm{BaSO4} & 1.022e-06 & 1.040e-06 & -5.991 & -5.933 & 0.008 \\ \mathrm{MgSO4} & 2.691e-07 & 2.738e-07 & -6.550 & -6.553 & 0.008 \\ \mathrm{HSO4-} & 1.739e-13 & 1.430e-13 & -12.747 & -12.845 & -0.097 \\ \mathrm{CalKSO4+} & 8.534e-15 & 6.802e-15 & -14.069 & -14.166 & -0.097 \\ \mathrm{PbSO4} & 4.065e-18 & 4.136e-18 & -17.391 & -17.383 & 0.008 \\ \mathrm{Pb(SO4)2-2} & 2.449e-19 & 9.990e-20 & -18.611 & -19.000 & -0.389 \\ \mathrm{AlSO4+} & 1.300e-30 & 1.039e-30 & -29.886 & -29.983 & -0.097 \\ \mathrm{AlKSO4+2} & 0.000e+00 & 0.002e+00 & -43.107 & -43.496 & -0.389 \\ \mathrm{HSIO4-} & 6.694e-05 & 6.592e-05 & -4.174 & -4.272 & -0.097 \\ \mathrm{H2SIO4-2} & 1.639e-05 & 6.669e-06 & -4.785 & -5.175 & -0.389 \\ \mathrm{H3SIO4-} & 1.608e-07 & 1.637e-07 & -6.794 & -6.786 & 0.008 \\ \mathrm{SIF6-2} & 0.000e+00 & 0.000e+00 & -48.644 & -49.033 & -0.389 \\ \mathrm{Sr} & 6.298e-05 & & & & & & & & & & & & & & & & & & &$	C (C)			9.00/0 00	101007	201040	
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NRSO4- 5.228-04 4.178-04 -3.282 -3.373 -0.097 KSO4- 2.4799-04 1.981e-04 -3.606 -3.703 -0.097 SFSO4 1.022e-05 1.040e-06 -5.991 -5.933 0.008 MSO4 2.691e-07 2.738e-07 -6.573 -6.563 0.008 MSO4 1.789e-13 1.430e-13 -12.747 -12.848 -0.097 CAHSO4+ 8.534e-15 6.820e-15 -14.069 -14.166 -0.097 PDSO4 4.055e-18 4.138e-13 -12.747 -12.848 -0.097 ALSO4+ 1.339e-31 1.470e-31 -30.735 -30.833 -0.097 ALSO4+ 1.309e-30 1.039e-30 -29.886 -29.983 -0.097 ALSO4+ 1.309e-31 1.470e-31 -30.735 -30.833 -0.097 ALSO4+ 1.639e-05 5.350e-05 -4.174 -4.272 -0.097 H2SI04- 1.609e-07 1.637e-07 -6.794 -6.786 0.008 SiF6-2 0.000e+00 0.000e+00 -48.644 -49.033 -0.389							
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PbS04 4.065e-18 4.136e-18 -17.391 -17.383 0.008 Pb(SO4)2-2 2.449e-19 9.990e-20 -18.611 -19.000 -0.389 ALSO4+ 1.300e-30 1.039e-30 -29.886 -29.983 -0.097 ALSO4)2- 1.839e-31 1.470e-31 -30.735 -30.833 -0.097 ALSO4+2 0.000e+00 0.000e+00 -43.107 -43.496 -0.389 Si 8.349e-05 -43.107 -43.496 -0.389 H3SIO4- 6.694e-05 5.350e-05 -4.174 -4.272 -0.097 H2SIO4-2 1.639e-05 6.685e-06 -4.785 -5.175 -0.389 SIF6-2 0.000e+00 0.000e+00 -8644 -49.033 -0.389 Sr 6.298e-05 -1.666e-05 -4.411 -4.776 -0.367 SrSO4 1.367e-05 1.391e-05 -8.864 -49.033 -0.389 SrCO3 7.541e-05 7.673e-06 -5.5123 -5.100.08 SrCO3 7.541e-05 1.391e-05 -8.709 -8.709 -8.802 -0.093			8.534e-15	6.820e-15	-14.069	-14.166	-0.097
PD(SO4)2-2 2.449e-13 9.990e-20 -18.611 -19.000 -0.389 AISO4+ 1.300e-30 1.039e-30 -29.886 -29.983 -0.097 AISO4+ 0.000e+00 0.000e+00 -43.107 -43.496 -0.389 8.349e-05 B.349e-05 H3SIO4- 6.694e-05 5.350e-05 -4.174 -4.272 -0.097 H2SIO4-2 1.637e-05 6.685e-06 -4.785 -5.175 -0.389 H4SIO4- 1.608e-07 1.637e-07 -6.794 -6.786 0.008 SIF6-2 0.000e+00 0.000e+00 -48.644 -49.033 -0.389 Sr 6.298e-05 Sr+2 3.883e-05 1.666e-05 -4.411 -4.778 -0.367 SrSO4 1.367e-05 1.391e-05 -4.664 -4.857 0.008 SrC03 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrC03 7.541e-06 7.673e-06 -5.123 -5.125 0.008 SrC03 7.541e-06 7.673e-06 -5.123 -5.129 -0.096 SrHC03+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093 Saturation indices			4.065e-18	4.136e-18	-17.391	-17.383	0.008
AlSO4+ 1.300e-30 1.039e-30 -29.886 -29.983 -0.097 Al(SO4)2- 1.839e-31 1.470e-31 -30.735 -30.833 -0.097 Al(SO4)2- 1.639e-05 0.000e+00 -43.107 -43.496 -0.389 S1 8.349e-05 6.685e-06 -4.174 -4.272 -0.097 H2S104-2 1.639e-05 6.685e-06 -4.785 -5.175 -0.389 H4S104 1.608e-07 1.637e-07 -6.794 -6.786 0.008 S1F6-2 0.000e+00 0.000e+00 -48.644 -49.033 -0.389 S1 6.298e-05 Sr+2 3.883e-05 1.666e-05 -4.411 -4.776 -0.367 SrSO4 1.367e-05 1.391e-05 -4.464 -4.857 0.008 SrCO3 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrCO3 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrCO3 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrCO3 7.541e-06 7.673e-06 -5.533 -5.629 -0.096 SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093 					-18.611	-19.000	-0.389
Al (SO4) 2- 1.839e-31 1.470e-31 -30.735 -30.833 -0.097 Al (SO4) 2- 1.639e-05 8.349e-05 H3SiO4- 6.694e-05 5.350e-05 -4.174 -4.272 -0.097 H2SiO4-2 1.639e-05 6.685e-06 -4.785 -5.175 -0.389 H4SiO4 1.608e-07 1.637e-07 -6.794 -6.786 0.008 SiF6-2 0.000e+00 0.000e+00 -48.644 -49.033 -0.389 Sr 6.298e-05 Sr42 3.883e-05 1.666e-05 -4.411 -4.776 -0.367 SrSO4 1.367e-05 1.391e-05 -4.864 -4.857 0.008 SrCO3 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrCO3 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.096 SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093 Saturation indices							
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$		SiF6-2	0.000e+00	0.000e+00	-48.644	-49.033	-0.389
SrS04 1.367e-05 1.391e-05 -4.864 -4.857 0.008 SrC03 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrOH+ 2.929e-06 2.350e-06 -5.533 -5.629 -0.096 SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093	Sr	6.298	le-05				
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SrC03 7.541e-06 7.673e-06 -5.123 -5.115 0.008 SrOH+ 2.929e-06 2.350e-06 -5.533 -5.629 -0.096 SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093 Saturation indices		SrSO4	1.367e-05	1.391e-05	-4.864	-4.857	
SrOH+ 2.929e-06 2.350e-06 -5.533 -5.629 -0.096 SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093			7.541e-06	7.673e-06	-5.123	-5.115	
SrHCO3+ 1.955e-09 1.577e-09 -8.709 -8.802 -0.093 Saturation indices Saturation indices Phase SI log IAP log KT Al (OH) 3 (a) -4.99 6.21 11.20 Al (OH) 3 Albite -8.34 -3.43 4.91 NaAlSi3O8 Alunite -24.90 -25.54 -0.64 KAl3 (SO4) 2 (OH) 6 Anglesite -12.31 -20.13 -7.82 PbSO4 Anorthite -5.40 21.32 26.72 CaAl2Si2O8 Aragonite 2.83 -5.47 -8.30 CaCO3 Barite 1.39 -8.68 -10.07 BaSO4 Ca-Montmorillonite -15.12 -6.73 8.39 Ca0.165Al2.33Si3.67010 (OH) 2 Calcite 2.98 -5.47 -8.45 CaCO3 Certusite -7.66 -20.86 -13.20 PbCO3 Chlocdony -3.16 -6.78 -3.62 SiO2 Chlorite(14A) 13.16 83.92 70.66 MgSAl2Si3O10 (OH) 8 Chrysotile 8.53 <td></td> <td></td> <td>2,929e-06</td> <td>2.350e-06</td> <td>-5.533</td> <td>-5.629</td> <td>-0.096</td>			2,929e-06	2.350e-06	-5.533	-5.629	-0.096
Phase SI log IAP log KT Al (OH) 3 (a) -4.99 6.21 11.20 Al (OH) 3 Albite -8.34 -3.43 4.91 NaAlSi308 Alunite -24.90 -25.54 -0.64 KAI3 (SO4) 2 (OH) 6 Anglesite -12.31 -20.13 -7.82 PbS04 Anhydrite -0.40 -4.74 -4.34 CaS04 Anorthite -5.40 21.32 26.72 CaAl2Si208 Aragonite 2.83 -5.47 -8.30 CaC03 Barite 1.39 -8.68 -10.07 BaS04 Ca-Montmorillonite -15.12 -6.73 8.39 Ca0.165Al2.33Si3.67O10 (OH) 2 Calcite 2.98 -5.47 -8.45 CaC03 Celestite -0.49 -7.12 -6.62 SrS04 Cerrusite -7.66 -20.86 -13.20 PbC03 Chlorite(14A) 13.16 83.82 70.66 MgShl2Si3010 (OH) 8 Chrysotile 8.53 41.49 32.96 Mg3Si2O5 (OH) 4 CO2 (g) -9.78 -27.94			1,955e-09	1.577e-09	-8.709	-8.802	-0.093
Albite -8.34 -3.43 4.91 NaAlSi3O8 Alunite -24.90 -25.54 -0.64 KAl3 (SO4) 2 (OH) 6 Anglesite -12.31 -20.13 -7.82 PbSO4 Anhydrite -0.40 -4.74 -4.34 CaSO4 Anorthite -5.40 21.32 26.72 CaAl2Si2O8 Aragonite 2.83 -5.47 -8.30 CaCO3 Barite 1.39 -8.68 -10.07 BaSO4 Ca-Montmorillonite -15.12 -6.73 8.39 Ca0.165Al2.33Si3.67O10(OH)2 Calcite 2.98 -5.47 -8.45 CaCO3 Celestite -0.49 -7.12 -6.62 SrSO4 Cerrusite -7.66 -20.86 -13.20 PbCO3 Chalcedony -3.16 -6.78 -3.62 SiO2 Chlorite(14A) 13.16 83.82 70.66 Mg5Al2Si3O10(OH)8 Chrysotile 8.53 41.49 32.96 Mg3Si2O5(OH)4 CO2 (g) -9.78 -27.94 -18.17 CO2 Dolomite 1.		Phase	SI log I	AP log KT			
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Anhydrite -0.40 -4.74 -4.34 CaSO4 Anorthite -5.40 21.32 26.72 CaAl2Si2O8 Aragonite 2.83 -5.47 -8.30 CaCO3 Barite 1.39 -8.68 -10.07 BaSO4 Ca-Montmorillonite -15.12 -6.73 8.39 CaO.165Al2.33Si3.67O10(OH)2 Calcite 2.98 -5.47 -8.45 CaCO3 Celestite -0.49 -7.12 -6.62 SrSO4 Cerrusite -7.66 -20.86 -13.20 PbCO3 Chalcedony -3.16 -6.78 -3.62 SiO2 Chlorite(14A) 13.16 83.82 70.66 Mg5Al2Si3O10(OH)8 Chrysotile 8.53 41.49 32.96 Mg3Si2O5(OH)4 CO2(g) -9.78 -27.94 -18.17 CO2 Dolomite 1.89 -15.06 -16.95 CaMg(CO3)2 Fluorite 0.63 -10.04 -10.67 CaF2 Gibbsite -2.25 6.21 8.45 Al(OH)3 Gypsum -0.16 -4.74 -4.58 CaSO4:2H2O H2(g) -32.88 -32.88 0.00 H2		Anglesite	-12.31 -20.	.13 -7.82	PbSO4		
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Ca-Montmorillonite -15.12 -6.73 8.39 Ca0.165Al2.33Si3.67O10(OH)2 Calcite 2.98 -5.47 -8.45 CaCO3 Celestite -0.49 -7.12 -6.62 SrSO4 Cerrusite -7.66 -20.86 -13.20 PbCO3 Chalcedony -3.16 -6.78 -3.62 SiO2 Chlorite(14A) 13.16 83.82 70.66 Mg5Al2Si3O10(OH)8 Chrysotile 8.53 41.49 32.96 Mg3Si2O5(OH)4 CO2(g) -9.78 -27.94 -18.17 CO2 Dolomite 1.89 -15.06 -16.95 CaMg(CO3)2 Fluorite 0.63 -10.04 -10.67 CaF2 Gibbsite -2.25 6.21 8.45 Al(OH)3 Gypsum -0.16 -4.74 -4.58 CaSO4:2H2O H2(g) -32.88 -32.88 0.00 H2		-		.68 -10.07	BaSO4		
Calcite 2.98 -5.47 -8.45 CaCO3 Celestite -0.49 -7.12 -6.62 SrSO4 Cerrusite -7.66 -20.86 -13.20 PbCO3 Chalcedony -3.16 -6.78 -3.62 SiO2 Chlorite(14A) 13.16 83.82 70.66 Mg5Al2Si3O10(OH)8 Chrysotile 8.53 41.49 32.96 Mg3Si2O5(OH)4 CO2(g) -9.78 -27.94 -18.17 CO2 Dolomite 1.89 -15.06 -16.95 CaMg(CO3)2 Fluorite 0.63 -10.04 -10.67 CaF2 Gibbsite -2.25 6.21 8.45 Al(OH)3 Gypsum -0.16 -4.74 -4.58 CaSO4:2H2O H2(g) -32.88 -32.88 0.00 H2				-6.73 8.	39 Ca0.165	Al2.33Si3.	67010 (OH) 2
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Gypsum -0.16 -4.74 -4.58 CaSO4:2H2OH2(g) -32.88 -32.88 0.00 H2							
H2 (g) -32.88 -32.88 0.00 H2						•	
		Gypsum				0	
Hydroxyapatite 8.16 -31.92 -40.07 Ca5(PO4)3OH		H2 (g)	-32.88 -32				
		Hydroxyapatite	8.16 -31	.92 -40.07	Ca5(PO4)3	OH	
		. ·					

Illite K-feldspar	-11.23 -6.14	1.28 -3.87	12.51 2.27	K0.6Mg0.25Al2.3Si3.5O10(OH)2 KAlSi3O8
K-mica	-5.06	8.54	13.60	KA13S13010 (OH) 2
Kaolinite	-9.12	-1.16	7.97	A12Si2O5 (OH) 4
02 (g)	-19.42	65.76	85.18	02
Pb (OH) 2	-1.28	7.08	8.36	Pb (OH) 2
Quartz	-2.71	-6.78	-4.07	SiO2
Sepiolite	0.43	16.35	15.92	Mg2Si307.50H:3H2O
Sepiolite(d)	-2.31	16.35	18.66	Mg2Si307.50H:3H2O
SiO2(a)	-4.02	-6.78	-2.76	SiO2
Strontianite	1.43	-7.84	-9.27	SrC03
Talc	5.82	27.92	22.10	Mg3Si4O10 (OH) 2
Witherite	-0.83	-9.41	-8.58	BaCO3

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End of simulation.

Reading input data for simulation 2.

End of run.
