MAJOR ELEMENT GEOCHEMISTRY OF NUCLEAR DYNAMICS CORP. DRILL HOLES EB14, EB35, AND EB44, T.17N., R.9E., ESPANOLA BASIN, NEW MEXICO

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The accompanying data is placed on file for the use of the general public. It comprises chemical analyses for SiO2, TiO2, Al2O3, Fe2O3(t), MgO, CaO, MnO, Na2O, and K2O for the three drill holes EB14, EB35, and EB44. In addition, the concentrations of P2O5 and S are given for drill hole EB44. The data are arranged in columns headed by the depth in feet.

The drilling was done by the Hugh Harris Drilling Co. of Grand Junction, Colorado for the Nuclear Dynamics Corporation during April and May of 1970. The original copies of the drill logs are on file with the State Engineer in Santa Fe.

The locations of the drill holes are as follows:

EB14: SE 1/4, SW 1/4, SW 1/4
Sec. 8, T.17N., R.9E.

EB35: SE 1/4, NE 1/4, SW 1/4
Sec. 16, T.17N., R.9E.

EB44: NW 1/4, NW 1/14, NE 1/4
Sec. 17, T.17N., R.9E.

The drill holes sampled the Pojoaque member and possibly the upper part of the Skull Ridge member of the Miocene Tesuque formation. The transition may occur at 1530 feet in drill hole EB44 and at 1750 feet in drill hole EB14. The lithology is primarily a fluvial red-bed sequence sandstones, siltstones, and conglomerates derived from the Sangre de Cristo Range.

Analyses were obtained by x-ray fluorescence spectroscopy in the New Mexico Bureau of Mines and Mineral Resources laboratories. Pressed powder briquets were made from one gram splits of the cuttings at 10 ft. intervals, and a Rigaku 3064 spectrometer was used to collect the x-ray data. The raw data were reduced with the fundamental parameters program, XRF11, of John Criss.

Samples were prepared by Kevin Patton, Paul Schmidt, and Erick Jackson, undergraduate students. Many of the x-ray analyses were run by them.

The data is referenced by Renault (1984, 1986), Renault and Singh (1986), Renault, Singh, and Rollins (in press), and Rollins (1986).

REFERENCES

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Program: READIT.COM Disk: -85A29 05/22/86 Thursday 10:34:24
File: EB14CHEM.DAT

EB14

	10	20	30	40	50	60	70	80	90	100
SiO2	74.31	69.04	68.49	73.68	73.41	77.18	70.76	75.77	71.10	70.17
TiO2	0.47	0.20	0.65	0.25	0.18	0.17	0.22	0.19	0.33	0.24
Al2O3	9.45	7.87	12.04	7.45	7.17	6.66	7.63	6.49	7.68	6.15
Fe2O3(t)	2.69	1.54	4.17	2.08	1.68	1.48	1.64	1.76	2.31	2.81
MgO	1.20	0.80	2.78	0.83	0.60	0.83	0.71	0.65	0.98	0.71
CaO	1.70	9.66	2.93	6.37	5.43	4.17	7.04	6.16	6.61	5.73
MnO	0.06	0.06	0.09	0.07	0.12	0.04	0.10	0.06	0.07	0.05
Na2O	1.33	1.74	0.67	1.54	1.70	1.27	1.61	1.53	1.67	1.19
K2O	2.76	2.82	2.45	2.65	2.89	2.48	2.81	2.59	2.45	2.46
SUM	93.97	93.73	94.27	94.92	93.18	94.28	92.52	95.20	93.20	89.51

	110	120	130	140	150	160	170	180	190	200
SiO2	72.53	71.27	70.86	58.37	71.43	66.11	70.19	65.88	73.63	67.85
TiO2	0.22	0.26	0.20	0.27	0.24	0.32	0.17	0.34	0.20	0.20
Al2O3	6.96	7.20	7.85	8.35	7.22	8.51	6.91	8.74	7.02	6.71
Fe2O3(t)	1.77	2.14	1.62	2.17	2.02	2.35	1.48	2.26	1.59	1.58
MgO	0.67	0.85	0.87	0.91	0.93	1.07	0.64	1.24	0.92	0.71
CaO	7.92	8.46	8.05	15.90	7.72	9.26	8.04	9.77	7.00	9.29
MnO	0.06	0.07	0.06	0.09	0.07	0.08	0.06	0.06	0.05	0.06
Na2O	1.55	1.53	1.78	2.02	1.49	1.81	1.69	1.54	1.37	1.49
K2O	2.67	2.71	2.82	2.74	2.41	2.96	2.58	2.75	2.45	2.63
SUM	94.35	94.49	94.11	90.82	93.53	92.47	91.76	92.58	94.23	90.52

	210	220	230	240	250	260	270	280	290	300
SiO2	72.89	79.96	80.09	76.84	79.69	73.17	74.09	72.26	76.81	73.31
TiO2	0.30	0.12	0.12	0.16	0.14	0.16	0.23	0.19	0.16	0.22
Al2O3	7.21	5.41	5.40	6.58	5.72	6.22	8.78	7.00	6.44	6.39
Fe2O3(t)	1.69	1.14	1.05	0.95	0.98	1.11	1.75	1.57	1.29	1.65
MgO	1.15	0.53	0.52	0.60	0.52	0.50	0.68	0.69	0.59	0.69
CaO	7.74	5.13	4.18	5.52	3.63	5.16	4.53	8.20	5.87	7.00
MnO	0.06	0.04	0.04	0.03	0.04	0.04	0.04	0.07	0.04	0.07
Na2O	1.12	1.04	1.02	1.43	1.06	1.28	2.07	1.76	1.55	1.32
K2O	2.52	2.25	2.50	2.67	2.59	2.89	3.26	2.39	2.32	2.68
SUM	94.68	95.62	94.92	94.78	94.37	90.53	95.43	94.13	95.07	93.33

	310	320	330	340	350	360	370	380	390	400
SiO2	75.06	76.47	78.74	79.19	81.89	76.73	80.55	77.73	78.51	80.61
TiO2	0.32	0.20	0.19	0.17	0.15	0.20	0.15	0.14	0.24	0.15
Al2O3	6.54	6.47	6.24	5.67	5.75	5.76	5.46	4.41	5.75	5.05
Fe2O3(t)	2.09	1.32	1.35	1.26	1.14	1.97	1.30	1.23	1.64	1.22
MgO	0.75	0.81	0.65	0.58	0.55	0.70	0.58	0.49	0.78	0.51
CaO	7.14	5.72	5.14	4.99	3.82	6.86	4.57	6.99	6.01	4.48
MnO	0.05	0.05	0.04	0.04	0.04	0.07	0.04	0.04	0.05	0.05
Na2O	1.44	1.25	1.22	1.13	1.14	1.02	1.01	0.76	0.90	0.88
K2O	2.33	2.38	2.48	2.34	2.47	2.19	2.35	2.00	2.09	2.17
SUM	95.72	94.67	96.05	95.37	96.95	95.50	96.01	93.79	95.97	95.12

	410	420	430	440	450	460	470	480	490	500
SiO2	80.20	79.79	77.09	81.51	80.81	83.80	74.95	77.98	79.74	77.15
TiO2	0.19	0.28	0.29	0.20	0.15	0.17	0.40	0.28	0.11	0.31
Al2O3	5.24	6.28	6.69	5.56	5.47	4.64	8.68	7.06	4.48	7.36
Fe2O3(t)	1.47	1.82	1.71	1.32	1.00	1.07	2.25	1.88	0.82	1.79
MgO	0.63	0.94	1.10	0.75	0.62	0.54	1.55	1.21	0.46	1.10
CaO	6.00	4.26	5.83	4.81	5.21	4.38	4.85	4.46	4.40	4.44
MnO	0.05	0.05	0.05	0.04	0.04	0.03	0.05	0.05	0.03	0.04
Na2O	0.88	0.63	0.77	0.74	0.79	0.81	0.63	0.75	0.78	0.80
K2O	2.08	1.96	2.09	1.90	2.26	1.85	2.24	2.21	1.96	2.40
SUM	96.74	96.01	95.62	96.83	96.35	97.29	95.60	95.88	92.78	95.39

	510	520	530	540	550	560	570	580	590	600
SiO2	83.48	82.36	75.71	78.89	78.40	79.46	67.83	80.18	76.54	76.57
TiO2	0.15	0.13	0.24	0.17	0.20	0.20	0.39	0.25	0.14	0.13
Al2O3	4.79	5.14	6.71	4.86	6.19	5.66	9.08	6.55	4.81	4.80
Fe2O3(t)	1.00	1.07	1.52	1.16	1.37	1.45	2.66	1.44	1.03	0.99
MgO	0.65	0.62	0.89	0.68	0.87	0.71	1.52	1.08	0.60	0.59
CaO	3.97	4.84	5.65	5.94	5.72	5.71	6.24	4.06	6.76	7.45
MnO	0.03	0.05	0.04	0.04	0.04	0.04	0.05	0.03	0.05	0.07
Na2O	0.72	0.76	1.03	0.68	0.91	0.87	1.22	0.49	0.65	0.66
K2O	2.01	2.19	2.47	1.96	2.16	2.16	2.42	2.16	2.06	2.11
SUM	96.80	97.16	94.26	94.38	95.86	96.26	91.41	96.24	92.64	93.37

	610	620	630	640	650	660	670	680	690	700
SiO2	76.84	79.32	75.35	84.62	76.60	78.14	79.19	78.55	79.57	75.98
TiO2	0.18	0.22	0.20	0.13	0.17	0.16	0.15	0.14	0.16	0.16
Al2O3	5.44	7.02	5.80	4.16	5.19	4.82	4.82	4.74	5.28	5.40
Fe2O3(t)	1.30	1.54	1.34	0.86	1.21	1.05	1.00	1.12	1.15	1.20
MgO	0.68	0.96	0.81	0.52	0.67	0.65	0.45	0.58	0.62	0.61
CaO	6.29	3.92	7.42	4.07	6.80	6.41	5.35	6.02	5.25	6.86
MnO	0.04	0.03	0.06	0.03	0.05	0.04	0.03	0.04	0.03	0.04
Na2O	0.87	1.03	0.88	0.53	0.69	0.64	0.79	0.72	0.88	0.89
K2O	2.24	2.32	2.26	1.91	2.26	2.10	2.39	2.17	2.30	2.26
SUM	93.88	96.36	94.12	96.83	93.64	94.01	94.17	94.08	95.24	93.40

	710	720	730	740	750	760	770	780	790	800
SiO2	76.50	80.73	78.11	80.31	68.88	80.24	80.61	76.58	79.32	75.04
TiO2	0.13	0.15	0.16	0.19	0.52	0.16	0.18	0.25	0.22	0.29
Al2O3	4.94	5.20	5.09	4.71	9.78	5.15	5.44	6.14	5.93	6.64
Fe2O3(t)	1.02	1.04	1.06	1.10	3.10	1.02	1.18	1.55	1.31	1.88
MgO	0.62	0.65	0.74	0.65	2.09	0.63	0.71	1.00	0.94	1.14
CaO	7.58	4.95	5.78	4.92	5.09	4.15	4.02	5.09	3.99	5.78
MnO	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.05	0.03	0.05
Na2O	0.78	0.81	0.60	0.64	0.41	0.68	0.64	0.56	0.62	0.79
K2O	2.03	2.05	1.94	2.00	2.21	2.24	2.02	2.01	2.08	1.98
SUM	93.63	95.61	93.51	94.55	92.13	94.30	94.83	93.23	94.44	93.59

	810	820	830	840	850	860	870	880	890	900
SiO2	76.33	79.09	72.27	77.01	81.75	84.63	73.68	80.36	82.99	84.78
TiO2	0.30	0.25	0.42	0.17	0.17	0.12	0.31	0.14	0.18	0.18
Al2O3	7.22	6.55	8.87	5.05	5.23	4.70	7.76	4.32	5.75	4.78
Fe2O3(t)	2.00	1.56	2.60	1.20	1.12	0.85	2.00	0.98	1.14	1.45
MgO	1.25	0.85	1.48	0.72	0.74	0.55	1.24	0.53	0.76	0.74
CaO	4.32	4.34	4.66	5.89	3.42	2.85	5.69	4.97	2.73	2.46
MnO	0.04	0.04	0.06	0.03	0.03	0.02	0.05	0.04	0.03	0.03
Na2O	0.84	1.12	0.85	0.60	0.62	0.66	1.00	0.55	0.65	0.56
K2O	2.12	2.06	2.29	1.93	1.98	2.12	2.27	1.95	2.27	1.85
SUM	94.42	95.86	93.50	92.60	95.06	96.50	94.00	93.84	96.50	96.83

	910	920	930	940	950	960	970	980	990	1000
SiO2	78.84	81.72	80.82	80.54	81.00	81.19	80.87	79.88	75.39	74.05
TiO2	0.25	0.16	0.17	0.14	0.19	0.17	0.19	0.20	0.24	0.25
Al2O3	6.55	5.07	4.95	5.00	5.88	5.30	5.79	6.03	5.96	7.14
Fe2O3(t)	1.55	1.03	1.13	1.03	1.32	1.11	1.28	1.25	1.52	1.88
MgO	1.10	0.65	0.68	0.54	0.78	0.64	0.71	0.84	0.90	1.01
CaO	4.13	3.32	4.88	3.53	4.31	3.74	3.26	3.54	4.40	6.16
MnO	0.03	0.02	0.04	0.03	0.03	0.02	0.03	0.03	0.03	0.05
Na2O	0.56	0.59	0.61	0.71	0.79	0.77	0.77	0.63	0.78	1.04
K2O	2.03	2.14	2.03	2.30	2.13	2.02	2.28	2.13	2.09	2.43
SUM	95.04	94.70	95.31	93.82	96.43	94.96	95.18	94.53	91.31	94.01

	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100
SiO2	71.83	76.98	82.44	76.08	79.73	80.26	75.72	84.42	83.15	77.37
TiO2	0.40	0.30	0.19	0.38	0.27	0.26	0.37	0.14	0.23	0.32
Al2O3	8.02	7.45	5.26	7.82	6.57	6.53	7.77	4.65	5.85	7.28
Fe2O3(t)	2.44	1.99	1.08	2.22	1.74	1.76	2.35	0.99	1.63	1.95
MgO	1.61	1.34	0.72	1.35	1.10	1.10	1.34	0.53	0.80	1.14
CaO	6.78	4.57	3.38	4.23	3.57	3.08	4.73	2.32	3.45	4.76
MnO	0.05	0.05	0.04	0.04	0.04	0.03	0.05	0.03	0.05	0.05
Na2O	0.49	0.49	0.52	0.42	0.46	0.45	0.62	0.69	0.73	0.74
K2O	2.37	2.25	2.07	2.22	2.07	2.08	2.20	1.94	2.09	2.27
SUM	93.99	95.42	95.70	94.76	95.55	95.55	95.15	95.71	97.98	95.88

	1110	1120	1130	1140	1150	1160	1170	1180	1190	1200
SiO2	84.21	84.44	84.62	81.02	84.95	85.12	80.15	71.51	70.92	83.95
TiO2	0.15	0.17	0.18	0.22	0.18	0.16	0.24	0.41	0.50	0.18
Al2O3	4.79	5.35	5.22	6.38	5.33	5.29	6.21	9.11	9.52	5.35
Fe2O3(t)	0.96	1.05	1.09	1.41	1.21	1.10	1.52	2.48	2.96	1.16
MgO	0.54	0.68	0.68	0.87	0.72	0.65	0.91	1.58	1.83	0.71
CaO	2.57	2.63	2.56	3.42	2.64	2.39	3.89	5.51	5.60	2.79
MnO	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.06	0.06	0.03
Na2O	0.65	0.69	0.66	0.76	0.58	0.64	0.56	0.78	0.45	0.62
K2O	2.05	2.08	2.00	2.36	2.02	2.15	1.98	2.63	2.30	2.19
SUM	95.96	97.12	97.04	96.47	97.66	97.53	95.50	94.07	94.14	96.98

	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300
SiO2	81.28	76.55	81.62	80.25	82.14	81.30	81.49	81.64	75.80	83.79
TiO2	0.19	0.34	0.26	0.21	0.16	0.18	0.21	0.19	0.37	0.16
Al2O3	6.32	7.81	6.36	7.01	6.19	6.10	6.00	5.68	8.25	5.80
Fe2O3(t)	1.26	1.99	1.55	1.21	1.08	1.14	1.55	1.22	2.16	1.10
MgO	0.78	1.28	0.98	0.86	0.65	0.74	0.79	0.72	1.41	0.59
CaO	3.17	3.82	2.35	2.60	1.75	2.83	3.14	3.22	4.05	2.06
MnO	0.03	0.04	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.02
Na2O	0.75	0.57	0.52	0.76	0.86	0.81	0.65	0.65	0.68	0.95
K2O	2.61	2.52	2.16	2.79	2.75	2.22	2.29	2.20	2.27	2.38
SUM	96.39	94.92	95.83	95.72	95.60	95.35	96.15	95.55	95.03	96.85

	1310	1320	1330	1340	1350	1360	1370	1380	1390	1400
SiO2	76.14	81.33	82.65	80.91	83.20	85.65	69.54	74.33	75.47	83.02
TiO2	0.31	0.18	0.16	0.22	0.14	0.17	0.51	0.40	0.38	0.16
Al2O3	7.89	5.66	5.47	6.98	5.65	5.72	10.94	9.32	9.18	6.12
Fe2O3(t)	1.91	1.11	1.09	1.42	1.03	1.22	3.21	2.42	2.29	1.09
MgO	1.26	0.70	0.63	0.87	0.57	0.67	2.04	1.57	1.47	0.69
CaO	3.77	3.10	3.21	3.06	2.85	2.30	5.76	5.14	4.31	2.62
MnO	0.04	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.03
Na2O	0.78	0.72	0.63	0.68	0.78	0.60	0.41	0.56	0.61	0.66
K2O	2.47	2.38	2.31	2.54	2.42	2.21	2.43	2.31	2.41	2.21
SUM	94.57	95.21	96.18	96.71	96.67	98.57	94.89	96.10	96.17	96.60

	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500
SiO2	83.92	88.23	81.02	76.51	71.65	80.63	75.28	78.78	75.29	73.48
TiO2	0.17	0.12	0.24	0.39	0.41	0.31	0.42	0.31	0.36	0.43
Al2O3	5.66	4.90	7.03	8.85	9.20	7.55	9.77	7.99	8.85	9.85
Fe2O3(t)	1.03	0.79	1.47	2.28	2.52	1.77	2.50	1.85	2.19	2.64
MgO	0.74	0.43	0.88	1.41	1.59	1.18	1.63	1.17	1.44	1.64
CaO	2.72	1.74	3.16	3.92	6.47	3.10	3.88	4.09	4.17	4.38
MnO	0.02	0.02	0.03	0.04	0.05	0.04	0.05	0.05	0.05	0.05
Na2O	0.58	0.67	0.70	0.56	0.52	0.47	0.36	0.50	0.45	0.51
K2O	2.08	2.11	2.50	2.63	2.33	2.07	2.26	2.33	2.39	2.42
SUM	96.92	99.01	97.03	96.59	94.74	97.12	96.15	97.07	95.19	95.40

	1510	1520	1530	1540	1550	1560	1570	1580	1590	1600
SiO2	77.19	77.12	75.52	77.15	80.11	79.48	78.50	84.76	79.86	81.84
TiO2	0.36	0.31	0.34	0.32	0.27	0.26	0.27	0.16	0.21	0.20
Al2O3	8.48	7.71	8.81	7.88	7.22	7.28	7.70	5.67	7.58	6.63
Fe2O3(t)	2.21	1.92	2.06	1.98	1.61	1.54	1.68	1.02	1.38	1.24
MgO	1.33	1.17	1.40	1.18	1.06	1.04	1.05	0.61	0.97	0.81
CaO	3.62	4.47	4.31	4.06	3.56	3.88	3.97	2.70	3.61	3.52
MnO	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03
Na2O	0.54	0.65	0.62	0.60	0.65	0.63	0.71	0.73	0.81	0.72
K2O	2.21	2.11	2.21	2.25	2.14	2.17	2.37	2.10	2.52	2.37
SUM	95.99	95.50	95.31	95.46	96.66	96.32	96.28	97.78	96.97	97.36

	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700
SiO2	83.11	81.02	77.89	77.35	76.30	77.03	78.13	77.55	78.62	80.57
TiO2	0.19	0.20	0.22	0.26	0.33	0.32	0.30	0.27	0.28	0.24
Al203	6.21	6.76	8.02	8.22	8.90	8.49	8.42	8.21	7.85	7.32
Fe203(t)	1.19	1.23	1.39	1.60	2.07	1.99	1.71	1.65	1.69	1.47
MgO	0.75	0.75	0.98	1.08	1.26	1.22	1.19	1.15	1.11	0.97
CaO	3.09	3.46	3.88	3.79	4.10	4.00	3.84	3.68	3.56	2.96
MnO	0.03	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.03
Na20	0.74	0.82	0.81	0.81	0.63	0.59	0.74	0.75	0.74	0.72
K20	2.25	2.50	2.68	2.68	2.42	2.41	2.51	2.47	2.40	2.38
SUM	97.56	96.78	95.90	95.82	96.05	96.09	96.88	95.77	96.29	96 66

	1710	1720	1730	1740	1750	1760	1770	1780	1790	1800
SiO2	76.70	75.44	75.61	78.81	74.66	74.32	67.83	74.18	74.97	80.10
TiO2	0.28	0.32	0.43	0.28	0.39	0.47	0.61	0.44	0.42	0.27
Al203	7.78	8.67	9.33	7.90	9.44	10.35	12.47	9.89	9.27	7.37
Fe203(t)	1.68	2.06	2.66	1.69	2.41	2.84	3.78	2.53	2.42	1.50
MgO	1.10	1.32	1.47	1.14	1.53	1.79	2.27	1.72	1.55	1.09
CaO	4.19	4.79	4.03	3.67	4.39	3.61	5.44	4.26	4.04	2.84
MnO	0.04	0.04	0.05	0.03	0.04	0.04	0.06	0.04	0.04	0.03
Na20	0.71	0.78	0.67	0.67	0.75	0.49	0.57	0.58	0.55	0.63
K20	2.46	2.49	2.56	2.48	2.44	2.38	2.59	2.50	2.44	2.32
SUM	94.94	95.91	96.81	96.67	96.05	96.29	95.62	96.14	95.70	96.15

	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
SiO2	74.50	79.63	74.93	74.01	75.97	75.37	71.38	69.24	76.92	70.78
TiO2	0.40	0.23	0.32	0.41	0.38	0.38	0.50	0.59	0.38	0.52
Al2O3	9.44	7.64	8.62	9.53	9.00	9.22	11.00	11.48	9.14	10.60
Fe2O3(t)	2.28	1.41	1.99	2.47	2.26	2.25	3.00	3.58	2.44	3.07
MgO	1.58	0.97	1.25	1.57	1.56	1.55	2.00	2.19	1.58	2.05
CaO	4.18	3.34	5.07	4.30	4.14	3.58	3.99	4.81	3.17	5.22
MnO	0.04	0.03	0.04	0.04	0.05	0.04	0.04	0.06	0.04	0.05
Na2O	0.62	0.84	0.74	0.64	0.65	0.69	0.68	0.61	0.67	0.52
K2O	2.56	2.75	2.60	2.50	2.46	2.50	2.67	2.51	2.36	2.43
SUM	95.60	96.84	95.56	95.47	96.47	95.58	95.26	95.07	96.70	95.24

	1910	1920	1930	1940	1950	1960	1970	1980
SiO2	77.31	77.58	79.52	76.36	75.98	76.03	72.91	74.98
TiO2	0.38	0.37	0.31	0.38	0.43	0.40	0.47	0.40
Al2O3	9.03	8.72	7.52	9.22	9.23	9.39	10.02	9.48
Fe2O3(t)	2.14	2.20	1.75	2.30	2.51	2.39	2.63	2.47
MgO	1.58	1.47	1.11	1.58	1.67	1.56	1.86	1.62
CaO	3.39	3.87	3.02	3.34	3.95	2.94	4.41	4.50
MnO	0.04	0.03	0.02	0.04	0.04	0.03	0.05	0.04
Na2O	0.62	0.61	0.64	0.63	0.60	0.67	0.68	0.69
K2O	2.25	2.35	2.24	2.35	2.30	2.59	2.49	2.65
SUM	96.74	97.20	96.13	96.20	96.71	96.00	95.52	96.83

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File: EB35CHEM.DAT

EB35

	10	20	30	40	50	70	80	100	110	120
SiO2	66.43	68.80	79.47	79.37	79.46	80.38	71.99	74.16	76.49	7[illegible].94
TiO2	0.61	0.32	0.14	0.16	0.19	0.17	0.22	0.23	0.15	0.19
Al2O3	10.29	7.07	4.99	5.67	5.28	5.78	5.53	5.70	6.35	5.77
Fe2O3(t)	3.40	1.89	0.98	1.11	1.18	1.35	1.58	1.48	1.25	1.40
MgO	1.96	1.53	0.64	0.66	0.73	0.58	0.91	0.86	0.65	0.63
CaO	5.82	11.48	4.82	5.54	5.34	4.92	9.34	9.20	6.05	7.79
MnO	0.07	0.06	0.04	0.04	0.05	0.05	0.15	0.06	0.12	0.08
Na2O	0.86	0.60	0.81	0.96	0.71	1.04	0.80	0.72	0.91	1.07
K2O	2.31	1.91	1.74	2.10	2.00	2.09	1.70	1.95	2.90	1.87
SUM	91.75	93.66	93.63	95.61	94.94	96.36	92.22	94.36	94.87	93.74

	130	140	150	160	170	180	190	200	210	230
SiO2	80.73	71.63	76.85	75.99	75.44	80.33	75.09	77.39	78.19	78.93
TiO2	0.15	0.17	0.17	0.16	0.33	0.14	0.17	0.27	0.21	0.18
Al2O3	4.93	6.79	5.26	5.57	7.75	5.65	5.30	7.78	6.02	5.83
Fe2O3(t)	0.96	1.31	1.08	1.19	1.97	1.10	1.41	1.69	1.20	1.07
MgO	0.46	0.59	0.51	0.59	1.12	0.55	0.59	0.83	0.72	0.69
CaO	4.35	10.47	3.68	8.06	5.58	5.76	8.53	4.81	4.69	4.71
MnO	0.05	0.10	0.06	0.08	0.06	0.05	0.08	0.05	0.04	0.03
Na2O	0.70	1.25	0.89	0.88	0.86	0.86	0.81	1.27	0.80	0.76
K2O	2.14	2.75	2.11	2.17	2.34	2.28	1.98	2.63	2.21	2.21
SUM	94.47	95.06	90.61	94.69	95.45	96.72	93.96	96.72	94.08	94.41

	240	250	260	270	280	290	300	310	320	330
SiO2	81.36	82.08	73.53	80.42	83.90	82.88	84.97	80.40	75.86	73.30
TiO2	0.16	0.16	0.13	0.13	0.11	0.11	0.08	0.16	0.13	0.19
Al2O3	5.17	5.37	5.00	4.87	4.61	4.83	4.36	5.56	4.94	6.24
Fe2O3(t)	1.16	1.06	0.89	0.86	0.72	0.69	0.65	0.88	1.06	1.50
MgO	0.52	0.51	0.53	0.49	0.36	0.33	0.28	0.49	0.40	0.70
CaO	4.73	4.12	5.46	6.38	3.20	3.42	2.72	5.90	6.94	6.87
MnO	0.04	0.05	0.05	0.05	0.03	0.03	0.03	0.04	0.10	0.07
Na2O	0.73	0.81	0.73	0.73	0.80	0.66	0.69	0.89	0.89	0.93
K2O	2.07	2.11	2.18	2.04	2.10	2.52	2.28	2.39	2.10	2.29
SUM	95.94	96.27	88.50	95.97	95.83	95.47	96.06	96.71	92.42	92.09

	340	350	360	370	380	390	400	410	420	430
SiO2	74.08	74.32	75.40	73.89	72.73	78.54	82.18	76.43	79.22	82.27
TiO2	0.11	0.32	0.22	0.19	0.14	0.12	0.11	0.18	0.13	0.18
Al2O3	4.84	7.33	5.63	5.82	5.26	4.59	4.53	4.69	5.29	5.24
Fe2O3(t)	1.01	1.62	1.26	1.27	1.04	0.79	0.78	1.19	0.78	1.12
MgO	0.46	1.16	0.68	0.65	0.52	0.43	0.36	0.38	0.49	0.77
CaO	5.75	4.59	7.21	5.45	7.40	3.74	3.28	3.53	4.11	1.79
MnO	0.05	0.04	0.05	0.05	0.05	0.05	0.04	0.06	0.03	0.04
Na2O	0.66	0.62	0.74	0.84	0.80	0.64	0.59	0.67	0.63	0.66
K2O	2.18	2.26	1.94	2.25	2.13	2.10	2.06	2.24	2.41	2.19
SUM	89.14	92.26	93.13	90.41	90.07	91.00	93.93	89.37	93.09	94.26

	440	450	460	470	480	490	500	510	520	530
SiO2	80.40	79.25	82.65	83.55	72.74	84.66	82.90	82.26	78.45	82.17
TiO2	0.22	0.13	0.10	0.13	0.17	0.07	0.09	0.12	0.12	0.12
Al2O3	6.25	5.48	4.80	4.56	5.45	4.29	4.70	5.21	5.58	5.28
Fe2O3(t)	1.31	0.81	0.70	0.83	1.09	0.60	0.62	0.70	0.75	0.80
MgO	1.11	0.58	0.45	0.40	0.65	0.30	0.35	0.56	0.54	0.52
CaO	2.89	4.43	2.12	3.55	8.16	2.53	3.01	3.10	5.05	3.96
MnO	0.05	0.05	0.02	0.04	0.05	0.05	0.04	0.03	0.04	0.05
Na2O	0.72	0.74	0.64	0.64	0.73	0.57	0.67	0.53	0.72	0.68
K2O	2.41	2.59	2.35	2.17	2.29	2.28	2.25	2.39	2.69	2.38
SUM	95.36	94.06	93.83	95.87	91.33	95.35	94.63	94.90	93.94	95.96

	540	550	560	570	580	590	600	610	620	630
SiO2	74.85	73.57	79.25	73.51	80.60	80.78	80.84	82.82	87.47	90.84
TiO2	0.13	0.17	0.09	0.14	0.12	0.11	0.18	0.09	0.13	0.14
Al2O3	5.78	5.93	5.84	5.47	5.11	5.22	5.43	4.42	4.15	4.10
Fe2O3(t)	1.01	1.26	0.67	1.00	0.78	0.69	1.00	0.62	0.74	0.87
MgO	0.68	0.74	0.41	0.60	0.42	0.51	0.56	0.33	0.40	0.35
CaO	6.96	6.34	3.62	7.11	4.97	3.74	3.34	2.62	2.00	1.51
MnO	0.10	0.05	0.03	0.05	0.36	0.04	0.03	0.03	0.03	0.04
Na2O	0.84	0.79	0.75	0.67	0.68	0.66	0.63	0.56	0.44	0.39
K2O	2.42	2.19	3.11	2.43	2.38	2.47	2.08	2.28	1.87	1.91
SUM	92.77	91.04	93.77	90.98	95.42	94.22	94.09	93.77	97.23	100.15

	640	650	660	670	680	690	700	710	720	730
SiO2	85.62	86.07	85.39	86.03	84.73	79.18	81.89	82.60	78.63	82.35
TiO2	0.17	0.11	0.08	0.11	0.10	0.18	0.14	0.11	0.10	0.16
Al2O3	4.78	4.86	4.81	4.97	4.48	5.74	5.54	4.86	4.85	5.25
Fe2O3(t)	1.08	0.73	0.50	0.68	0.77	1.05	0.90	0.76	0.70	0.85
MgO	0.50	0.38	0.39	0.42	0.41	0.77	0.56	0.52	0.47	0.71
CaO	2.68	2.60	1.96	2.25	3.00	4.63	3.67	3.90	6.52	3.52
MnO	0.04	0.03	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.03
Na2O	0.44	0.65	0.53	0.61	0.54	0.75	0.62	0.58	0.60	0.50
K2O	2.02	2.26	2.44	2.33	2.15	2.22	2.27	2.06	2.17	1.98
SUM	97.33	97.69	96.12	97.43	96.21	94.56	95.63	95.43	94.07	95.35

	740	750	760	770	780	790	800	810	820	830
SiO2	77.58	76.52	81.43	83.48	81.14	86.78	82.93	87.89	87.78	86.61
TiO2	0.15	0.38	0.21	0.18	0.11	0.10	0.12	0.11	0.11	0.13
Al2O3	5.54	7.47	6.10	6.10	4.73	5.13	5.85	4.56	5.24	5.24
Fe2O3(t)	0.87	2.00	1.23	1.06	0.87	0.73	0.85	0.67	0.77	0.88
MgO	0.59	1.20	0.81	0.69	0.39	0.33	0.38	0.36	0.39	0.41
CaO	5.23	4.26	3.33	2.92	4.68	2.04	2.73	1.80	1.90	2.37
MnO	0.04	0.06	0.04	0.03	0.04	0.05	0.03	0.06	0.03	0.03
Na2O	0.69	0.63	0.55	0.71	0.58	0.67	0.83	0.61	0.67	0.66
K2O	2.35	2.27	2.17	2.40	2.18	2.51	2.85	2.11	2.46	2.53
SUM	93.04	94.79	95.87	97.57	94.72	98.34	96.57	98.17	99.35	98.86

	840	850	860	870	880	890	900	910	920	930
SiO2	83.10	85.08	85.17	83.25	86.26	86.80	81.48	82.95	82.91	80.13
TiO2	0.09	0.13	0.10	0.11	0.11	0.13	0.11	0.15	0.10	0.16
Al2O3	5.87	4.94	5.37	5.88	5.52	5.52	5.40	5.55	5.83	5.90
Fe2O3(t)	0.66	0.80	0.69	0.81	0.78	0.96	0.88	1.04	0.89	1.01
MgO	0.40	0.35	0.39	0.36	0.33	0.46	0.47	0.48	0.38	0.61
CaO	2.77	2.99	1.56	2.78	2.22	2.05	3.38	3.12	3.57	4.93
MnO	0.03	0.05	0.03	0.04	0.07	0.05	0.07	0.05	0.04	0.05
Na2O	0.85	0.65	0.72	0.95	0.86	0.66	0.76	0.79	0.99	0.76
K2O	2.84	2.34	2.60	2.71	2.62	2.37	2.54	2.44	2.61	2.36
SUM	96.61	97.33	96.63	96.89	98.77	99.00	95.09	96.57	97.32	95.91

	940	950	960	970	980	990	1000	1010	1020	1030
SiO2	87.33	79.74	83.01	80.58	77.54	81.24	88.07	85.33	83.65	85.20
TiO2	0.14	0.24	0.24	0.18	0.30	0.25	0.13	0.23	0.17	0.15
Al2O3	5.32	6.55	6.29	6.64	7.88	7.30	5.29	6.30	5.59	5.58
Fe2O3(t)	0.89	1.29	1.38	1.30	1.99	1.75	0.96	1.37	1.19	1.14
MgO	0.56	0.97	0.93	0.92	1.30	1.15	0.62	1.01	0.70	0.62
CaO	2.55	4.61	2.80	3.49	4.53	3.19	1.91	2.43	4.14	3.38
MnO	0.03	0.04	0.06	0.04	0.05	0.04	0.04	0.04	0.04	0.04
Na2O	0.56	0.54	0.53	0.61	0.51	0.53	0.61	0.44	0.58	0.65
K2O	2.31	2.33	2.15	2.30	2.25	2.26	2.01	2.00	2.21	2.18
SUM	99.69	96.31	97.39	96.06	96.35	97.71	99.64	99.15	98.27	98.94

	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130
SiO2	89.06	93.22	91.88	79.50	88.61	86.43	84.94	79.94	84.23	73.35
TiO2	0.10	0.08	0.07	0.12	0.15	0.12	0.13	0.18	0.14	0.35
Al2O3	5.02	4.03	3.57	5.98	4.62	4.68	5.14	6.27	5.01	8.50
Fe2O3(t)	0.68	0.51	0.48	0.89	0.98	0.84	0.86	1.16	0.90	2.18
MgO	0.46	0.43	0.33	0.64	0.52	0.52	0.65	0.83	0.55	1.54
CaO	1.78	1.06	0.97	4.55	1.79	2.64	3.28	3.95	2.80	4.39
MnO	0.02	0.02	0.02	0.05	0.03	0.03	0.04	0.04	0.04	0.05
Na2O	0.60	0.43	0.36	0.68	0.43	0.53	0.56	0.67	0.61	0.51
K2O	2.30	1.86	1.64	2.57	1.95	1.99	2.05	2.30	2.01	2.25
SUM	100.02	101.64	99.32	94.98	99.08	97.78	97.65	95.34	96.29	93.12

	1140	1150	1160	1170	1180	1190	1200	1210	1220	1230
SiO2	78.93	79.00	85.83	86.21	88.78	80.61	80.44	75.35	68.86	66.48
TiO2	0.26	0.23	0.22	0.11	0.11	0.20	0.23	0.35	0.52	0.42
Al2O3	7.18	6.73	6.16	5.58	4.84	6.11	6.73	8.55	11.58	9.02
Fe2O3(t)	1.58	1.27	1.19	0.75	0.80	1.16	1.38	2.05	3.77	2.92
MgO	1.28	1.19	0.96	0.54	0.43	0.91	0.97	1.56	2.36	1.74
CaO	4.05	4.00	2.78	2.33	1.83	4.50	4.60	4.71	5.04	10.02
MnO	0.04	0.04	0.04	0.02	0.03	0.04	0.04	0.05	0.05	0.10
Na2O	0.46	0.43	0.52	0.63	0.55	0.54	0.63	0.52	0.44	0.56
K2O	2.15	2.07	2.18	2.57	2.21	2.27	2.24	2.35	2.68	2.45
SUM	95.93	94.96	99.88	98.74	99.58	96.34	97.26	95.49	95.30	93.71

	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330
SiO2	76.68	68.38	81.46	84.30	85.54	81.04	76.40	79.59	75.78	78.97
TiO2	0.29	0.45	0.17	0.19	0.18	0.20	0.28	0.28	0.22	0.18
Al2O3	8.16	10.15	6.36	6.08	6.49	6.01	7.54	7.35	7.00	6.82
Fe2O3(t)	1.90	2.93	1.20	1.15	1.16	1.27	1.76	1.64	1.53	1.28
MgO	1.26	2.03	0.68	0.79	0.82	0.70	1.16	1.04	0.94	0.82
CaO	5.32	6.62	3.93	3.30	2.32	4.24	5.34	4.65	6.18	4.19
MnO	0.05	0.06	0.04	0.03	0.03	0.03	0.04	0.05	0.04	0.04
Na2O	0.84	0.58	1.02	0.72	0.85	0.87	0.84	0.84	0.89	0.92
K2O	2.44	2.49	2.30	2.03	2.17	2.15	2.28	2.34	2.29	2.53
SUM	96.94	93.69	97.16	98.59	99.56	96.51	95.64	97.78	94.87	95.75

	1340	1350	1360	1370	1380	1390	1400	1410	1420	1430
SiO2	83.18	82.10	77.84	80.90	75.01	78.39	83.64	76.93	71.61	83.63
TiO2	0.15	0.16	0.19	0.17	0.18	0.14	0.15	0.30	0.30	0.20
Al2O3	6.28	6.29	7.08	6.60	6.77	6.32	5.97	8.70	8.54	6.54
Fe2O3(t)	1.03	1.11	1.23	1.20	1.20	1.02	1.03	1.79	2.02	1.25
MgO	0.62	0.66	0.89	0.77	0.87	0.71	0.63	1.46	1.28	0.76
CaO	3.01	3.42	4.46	4.32	6.14	5.13	3.27	3.58	6.05	2.38
MnO	0.03	0.03	0.04	0.03	0.04	0.03	0.03	0.04	0.06	0.04
Na2O	0.86	0.89	0.95	0.89	0.91	1.00	0.88	0.70	0.87	0.86
K2O	2.61	2.32	2.45	2.28	2.40	2.30	2.22	2.48	2.60	2.32
SUM	97.77	96.98	95.13	97.16	93.52	95.04	97.82	95.98	93.33	97.98

	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530
SiO2	66.03	74.82	78.13	79.77	81.62	80.52	77.53	78.72	75.75	85.19
TiO2	0.42	0.41	0.23	0.19	0.17	0.18	0.24	0.28	0.26	0.21
Al2O3	9.54	9.17	7.77	7.07	6.56	6.87	7.13	7.29	6.97	5.58
Fe2O3(t)	2.27	2.35	1.48	1.29	1.06	1.27	1.47	1.74	1.41	1.25
MgO	1.91	1.68	1.10	0.78	0.64	0.81	0.96	1.07	1.06	0.66
CaO	7.91	4.95	3.50	3.85	2.75	3.68	3.77	3.90	3.51	2.40
MnO	0.06	0.05	0.04	0.04	0.03	0.04	0.03	0.04	0.04	0.03
Na2O	0.74	0.83	0.93	1.04	1.15	1.05	0.96	0.83	0.86	0.78
K2O	2.47	2.56	2.42	2.37	2.34	2.37	2.35	2.14	2.09	1.89
SUM	91.35	96.82	95.60	96.40	96.32	96.79	94.44	96.01	91.95	97.99

	1540	1550	1560	1570	1580	1590	1600	1610	1620	1630
SiO2	80.31	84.92	74.41	76.90	81.27	83.05	77.72	77.19	75.08	81.62
TiO2	0.30	0.29	0.27	0.30	0.21	0.20	0.21	0.25	0.46	0.20
Al2O3	7.59	5.46	7.77	7.62	6.43	6.31	6.85	7.12	9.27	6.59
Fe2O3(t)	1.69	1.47	1.53	1.99	1.27	1.16	1.45	1.63	2.69	1.22
MgO	1.16	0.68	1.07	1.23	0.86	0.74	0.87	0.90	1.64	0.80
CaO	3.07	1.93	4.73	3.92	3.82	2.52	4.83	4.78	3.70	2.34
MnO	0.04	0.04	0.03	0.04	0.04	0.03	0.04	0.05	0.06	0.03
Na2O	0.86	0.76	0.89	0.78	0.86	0.83	1.01	0.95	0.84	0.90
K2O	2.13	1.88	2.53	2.24	2.06	2.27	2.25	2.27	2.47	2.32
SUM	97.15	97.43	93.23	95.02	96.82	97.11	95.23	95.14	96.21	96.02

	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730
SiO2	79.07	76.13	75.25	77.07	80.19	76.44	79.23	78.80	79.29	82.52
TiO2	0.22	0.26	0.24	0.21	0.18	0.30	0.21	0.25	0.24	0.19
Al2O3	7.45	8.06	7.47	7.65	6.82	7.57	7.04	6.77	6.62	6.32
Fe2O3(t)	1.50	1.57	1.60	1.41	1.24	1.79	1.32	1.33	1.33	1.27
MgO	0.86	1.13	0.91	0.81	0.64	1.04	0.78	0.80	0.85	0.64
CaO	3.37	4.11	5.97	4.41	3.75	4.84	3.90	3.66	3.55	3.36
MnO	0.04	0.04	0.05	0.04	0.03	0.05	0.04	0.04	0.04	0.04
Na2O	1.14	1.05	1.15	1.32	1.21	0.99	1.13	0.96	0.81	1.02
K2O	2.40	2.47	2.36	2.53	2.31	2.36	2.42	2.25	2.26	2.37
SUM	96.05	94.82	95.00	95.45	96.37	95.38	96.07	94.86	94.99	97.73

	1740	1750	1760	1770	1780	1790	1800	1810	1820	1830
SiO2	84.05	86.26	86.45	82.78	72.30	84.61	78.41	81.92	86.75	74.36
TiO2	0.15	0.14	0.16	0.19	0.39	0.18	0.22	0.15	0.17	0.40
Al2O3	6.53	5.51	5.18	6.49	9.02	6.41	7.41	7.15	5.82	9.19
Fe2O3(t)	1.03	0.91	1.06	1.31	2.36	1.23	1.35	1.08	1.15	2.59
MgO	0.49	0.44	0.51	0.74	1.59	0.74	0.90	0.58	0.62	1.55
CaO	2.86	2.14	2.08	2.51	4.79	2.30	3.43	2.36	1.87	3.96
MnO	0.03	0.03	0.04	0.03	0.06	0.03	0.03	0.03	0.03	0.05
Na2O	1.26	1.02	0.90	0.92	0.83	0.94	1.12	1.32	0.90	0.67
K2O	2.52	2.10	1.91	2.26	2.54	2.22	2.39	2.55	2.01	2.39
SUM	98.92	98.55	98.29	97.23	93.88	98.66	95.26	97.14	99.32	95.16

	1840	1850	1860
SiO2	71.79	80.32	83.58
TiO2	0.34	0.21	0.22
Al2O3	8.74	7.33	6.45
Fe2O3(t)	2.35	1.57	1.40
MgO	1.40	0.84	0.87
CaO	6.32	3.13	2.65
MnO	0.06	0.04	0.04
Na2O	0.83	0.97	0.80
K2O	2.40	2.58	2.16
SUM	94.23	96.99	98.17

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File: EB44CHEM.DAT

EB44

	10	20	30	40	50	60	70	80	90	100
SiO2	55.63	57.08	65.29	67.35	78.00	68.05	63.33	67.36	72.85	85.60
TiO2	0.77	0.67	0.65	0.62	0.25	0.59	0.68	0.40	0.25	0.18
Al2O3	14.44	12.91	12.42	12.35	10.55	13.02	13.54	8.94	7.34	6.24
Fe2O3(t)	5.73	4.59	3.85	3.94	1.77	3.91	4.35	2.33	2.17	1.19
MgO	2.89	3.20	2.30	2.27	0.69	2.08	2.50	1.40	0.81	0.57
CaO	10.60	9.26	6.30	5.87	1.36	4.46	6.74	9.11	8.72	3.37
MnO	0.10	0.08	0.07	0.07	0.02	0.04	0.08	0.05	0.05	0.03
Na2O	0.62	0.70	0.82	0.86	2.21	0.91	0.58	0.94	1.29	1.02
K2O	2.32	2.12	2.25	2.43	3.76	2.59	2.33	2.14	2.10	2.11
P2O5	0.09	0.09	0.09	0.09	0.06	0.09	0.02	0.06	0.15	0.01
S	0.06	0.10	0.03	0.03	0.01	0.02	0.08	0.02	0.01	0.08
SUM	93.25	90.78	94.09	95.88	98.69	95.75	94.23	92.76	95.75	100.39

	110	120	130	140	150	160	170	180	190	200
SiO2	74.89	76.71	70.30	86.11	83.18	71.79	71.15	67.36	75.30	75.80
TiO2	0.26	0.18	0.48	0.16	0.19	0.31	0.41	0.43	0.33	0.25
Al2O3	6.76	6.44	10.13	6.26	7.36	8.96	10.12	9.63	8.99	7.50
Fe2O3(t)	1.63	1.35	2.75	1.29	1.45	1.99	2.56	2.73	2.38	1.66
MgO	0.78	0.59	1.86	0.50	0.56	1.02	1.39	1.55	1.03	0.83
CaO	7.33	7.94	5.50	1.06	2.79	6.75	6.04	8.15	4.83	6.78
MnO	0.04	0.04	0.05	0.02	0.03	0.04	0.07	0.07	0.05	0.05
Na2O	1.04	1.15	0.61	1.05	1.23	1.27	1.16	0.88	1.54	1.28
K2O	1.97	2.20	2.30	2.21	2.47	2.36	2.39	2.17	2.12	2.16
P2O5	0.06	0.04	0.02	0.01	0.07	0.07	0.07	0.06	0.06	0.06
S	0.01	0.01	0.07	0.07	0.01	0.01	0.01	0.02	0.01	0.01
SUM	94.77	96.65	94.05	98.74	99.34	94.56	95.37	93.04	96.65	96.37

	210	220	230	240	250	260	270	280	290	300
SiO2	77.36	81.78	83.12	80.88	85.27	86.58	86.69	87.62	86.93	79.29
TiO2	0.29	0.17	0.17	0.17	0.18	0.12	0.14	0.12	0.20	0.35
Al2O3	7.75	6.43	7.34	8.92	6.39	6.09	6.70	6.09	6.41	8.40
Fe2O3(t)	1.72	1.38	1.35	1.24	1.31	0.88	1.20	0.97	1.13	2.10
MgO	0.76	0.42	0.44	0.43	0.49	0.37	0.43	0.34	0.39	1.08
CaO	5.38	2.96	3.78	3.26	3.08	2.83	1.66	1.73	1.91	4.46
MnO	0.04	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.05
Na2O	1.24	1.24	1.48	2.08	1.11	1.12	1.25	1.41	1.25	0.74
K2O	2.38	2.02	2.65	2.97	2.23	2.32	2.50	2.18	2.34	2.07
P2O5	0.05	0.00	0.05	0.06	0.04	0.00	0.02	0.01	0.01	0.05
S	0.01	0.04	0.01	0.01	0.01	0.04	0.04	0.03	0.04	0.01
SUM	96.98	96.47	100.39	100.04	100.14	100.37	100.65	100.52	100.63	98.61

	310	320	330	340	350	360	370	380	390	400
SiO2	70.54	79.88	77.16	79.12	73.39	78.81	78.60	80.82	82.18	85.54
TiO2	0.53	0.19	0.20	0.18	0.41	0.28	0.27	0.25	0.28	0.19
Al2O3	10.81	6.26	6.40	5.78	9.06	7.57	8.49	7.98	7.45	7.04
Fe2O3(t)	3.01	1.27	1.44	1.25	2.59	2.09	1.80	1.68	1.82	1.29
MgO	1.68	0.62	0.66	0.56	1.25	0.90	0.80	0.76	0.76	0.64
CaO	5.20	5.71	6.92	4.99	6.06	5.10	2.88	3.03	3.01	1.83
MnO	0.06	0.04	0.04	0.04	0.05	0.05	0.03	0.04	0.04	0.02
Na2O	0.67	0.89	0.94	0.97	0.76	0.86	1.33	1.27	1.01	0.99
K2O	2.32	2.03	2.01	1.95	2.19	2.05	2.51	2.28	2.09	2.29
P2O5	0.08	0.05	0.06	0.04	0.07	0.09	0.07	0.06	0.06	0.00
S	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.05
SUM	94.92	96.97	95.85	94.87	95.83	97.81	96.80	98.16	98.70	99.88

EB44

	410	420	430	440	450	460	470	480	490	500
SiO2	85.45	86.97	84.65	83.74	88.40	91.33	80.17	90.01	87.68	84.36
TiO2	0.21	0.21	0.23	0.26	0.22	0.15	0.38	0.13	0.20	0.25
Al2O3	7.23	6.80	6.67	7.13	5.62	5.55	8.80	5.78	6.42	7.67
Fe2O3(t)	1.48	1.44	1.60	1.76	1.50	0.95	2.42	0.92	1.31	1.62
MgO	0.71	0.66	0.61	0.73	0.51	0.48	1.24	0.49	0.73	0.86
CaO	1.63	1.78	2.15	1.98	1.87	1.18	2.81	1.07	1.49	2.18
MnO	0.02	0.03	0.02	0.02	0.03	0.02	0.04	0.01	0.02	0.02
Na2O	0.93	0.92	0.99	0.93	0.71	0.76	0.64	0.73	0.80	0.91
K2O	2.27	2.08	2.14	2.11	1.86	1.90	2.02	2.13	1.77	2.29
P2O5	0.05	0.00	0.01	0.01	0.01	0.01	0.06	0.01	0.01	0.05
S	0.01	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.05	0.01
SUM	99.99	100.94	99.12	98.72	100.78	102.38	98.58	101.31	100.48	100.22

	510	520	530	540	550	560	570	580	590	600
SiO2	91.61	89.93	86.15	86.78	81.42	84.74	75.45	81.72	73.17	83.94
TiO2	0.14	0.16	0.22	0.23	0.35	0.28	0.46	0.36	0.53	0.32
Al2O3	5.35	5.57	7.05	6.52	8.43	7.21	10.16	8.54	11.28	7.78
Fe2O3(t)	0.82	0.98	1.39	1.41	2.01	1.65	3.11	2.23	3.28	1.99
MgO	0.44	0.55	0.79	0.71	1.15	1.01	1.54	1.21	1.69	1.06
CaO	1.08	1.34	2.31	1.78	2.57	2.19	3.49	2.62	3.75	2.19
MnO	0.01	0.02	0.02	0.03	0.03	0.02	0.04	0.04	0.04	0.03
Na2O	0.75	0.70	0.78	0.72	0.63	0.54	0.59	0.57	0.55	0.53
K2O	1.96	1.82	2.20	2.06	2.13	1.93	2.18	1.98	2.28	1.96
P2O5	0.00	0.03	0.05	0.04	0.06	0.01	0.07	0.06	0.08	0.00
S	0.04	0.03	0.01	0.01	0.01	0.05	0.01	0.02	0.01	0.00
SUM	102.20	101.13	100.97	100.27	98.79	99.63	97.09	99.32	96.65	99.80

	610	620	630	640	650	660	670	680	690	700
SiO2	83.60	83.09	84.35	79.61	83.93	82.07	72.68	73.78	85.75	82.29
TiO2	0.28	0.29	0.24	0.38	0.27	0.33	0.37	0.37	0.28	0.34
Al2O3	7.46	7.84	7.08	8.86	7.31	8.52	9.44	9.37	6.40	6.84
Fe2O3(t)	1.85	1.87	1.62	2.42	1.74	2.04	2.85	2.44	2.00	2.28
MgO	1.06	1.06	0.85	1.29	0.97	1.16	1.29	1.24	0.70	0.83
CaO	2.18	2.52	2.26	3.19	2.16	2.55	5.80	5.01	2.44	3.09
MnO	0.02	0.03	0.02	0.04	0.03	0.04	0.04	0.05	0.04	0.05
Na2O	0.48	0.55	0.73	0.59	0.64	0.54	0.81	0.74	0.69	0.63
K2O	2.04	1.99	1.91	2.14	2.00	2.16	2.27	2.67	2.05	1.90
P2O5	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.04	0.05
S	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
SUM	99.05	99.31	99.14	98.58	99.13	99.48	95.63	95.74	100.40	98.31

	710	720	730	740	750	760	770	780	790	800
SiO2	73.25	75.92	80.34	87.54	83.19	78.27	86.88	87.26	79.19	85.18
TiO2	0.36	0.34	0.27	0.16	0.23	0.29	0.21	0.20	0.26	0.23
Al2O3	9.56	8.79	7.84	5.78	6.68	7.85	5.93	6.24	6.44	5.29
Fe2O3(t)	2.69	2.34	1.85	1.13	1.45	1.91	1.42	1.51	1.80	1.67
MgO	1.29	1.11	0.98	0.62	0.77	1.06	0.73	0.71	0.81	0.51
CaO	5.57	5.16	4.14	2.26	3.38	4.76	2.68	2.61	5.32	2.20
MnO	0.05	0.05	0.04	0.02	0.03	0.03	0.03	0.03	0.05	0.04
Na2O	0.83	0.79	0.75	0.66	0.73	0.64	0.57	0.63	0.56	0.55
K2O	2.35	2.25	2.17	2.01	2.03	2.15	1.75	1.85	1.72	1.66
P2O5	0.06	0.06	0.05	0.01	0.06	0.05	0.04	0.01	0.05	0.01
S	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.04	0.02	0.04
SUM	96.01	96.81	98.43	100.22	98.56	97.04	100.26	101.09	96.21	97.38

	810	820	830	840	850	860	870	880	890	900
SiO2	82.32	85.77	87.53	89.52	87.49	88.54	86.52	89.35	83.00	81.89
TiO2	0.28	0.21	0.24	0.17	0.19	0.20	0.22	0.18	0.24	0.27
Al2O3	7.30	5.98	5.33	4.88	5.47	5.23	6.87	4.94	6.40	6.92
Fe2O3(t)	1.91	1.42	1.48	0.99	1.11	1.20	1.28	1.05	1.47	1.44
MgO	0.89	0.61	0.51	0.46	0.54	0.51	0.77	0.45	0.70	0.77
CaO	3.50	3.27	2.75	2.24	1.91	1.96	1.97	1.65	3.50	3.07
MnO	0.03	0.04	0.04	0.02	0.02	0.03	0.02	0.02	0.03	0.03
Na2O	0.60	0.70	0.66	0.67	0.66	0.57	0.66	0.66	0.68	0.60
K2O	1.95	1.91	1.82	1.74	1.91	1.81	2.02	1.75	1.93	2.05
P2O5	0.05	0.04	0.04	0.01	0.01	0.01	0.05	0.01	0.04	0.05
S	0.01	0.01	0.01	0.03	0.03	0.04	0.06	0.04	0.01	0.01
SUM	98.84	99.96	100.42	100.73	99.34	100.10	100.43	100.10	98.00	97.11

	910	920	930	940	950	960	970	980	990	1000
SiO2	89.13	83.60	84.14	88.53	88.10	87.33	74.44	83.27	81.50	84.58
TiO2	0.17	0.28	0.20	0.20	0.19	0.22	0.45	0.33	0.27	0.29
Al2O3	5.24	7.49	6.45	6.23	5.42	5.86	9.37	7.61	6.73	6.73
Fe2O3(t)	1.01	1.72	1.26	1.13	1.15	1.19	2.89	2.06	1.67	1.76
MgO	0.48	0.93	0.59	0.56	0.50	0.62	1.41	0.93	0.79	0.82
CaO	2.28	3.11	2.97	1.72	2.09	2.30	4.60	2.53	3.93	2.43
MnO	0.02	0.03	0.02	0.02	0.03	0.03	0.04	0.04	0.03	0.04
Na2O	0.63	0.60	0.76	0.83	0.64	0.61	0.47	0.57	0.55	0.51
K2O	1.86	2.06	2.24	2.29	1.93	1.93	2.13	2.13	1.97	1.96
P2O5	0.01	0.06	0.04	0.01	0.01	0.04	0.06	0.05	0.05	0.05
S	0.04	0.01	0.01	0.04	0.04	0.01	0.01	0.01	0.01	0.01
SUM	100.87	99.89	98.68	101.56	100.10	100.15	95.87	99.54	97.49	99.17

	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100
SiO2	80.52	69.52	77.66	78.92	79.28	85.95	84.61	86.27	87.13	88.48
TiO2	0.35	0.53	0.35	0.36	0.31	0.22	0.20	0.22	0.22	0.22
Al2O3	7.29	11.71	8.95	8.58	8.13	6.35	6.62	5.93	5.52	5.85
Fe2O3(t)	1.97	3.51	2.22	2.37	1.93	1.35	1.44	1.29	1.27	1.27
MgO	0.90	1.71	1.20	1.14	1.08	0.73	0.68	0.62	0.63	0.64
CaO	3.74	5.22	3.56	3.59	3.94	2.58	2.60	2.49	2.41	2.49
MnO	0.04	0.05	0.04	0.04	0.03	0.02	0.03	0.02	0.03	0.02
Na2O	0.54	0.49	0.51	0.53	0.62	0.65	0.76	0.62	0.56	0.59
K2O	2.13	2.55	2.19	2.21	2.22	2.04	2.40	2.10	1.84	1.89
P2O5	0.05	0.07	0.06	0.05	0.06	0.01	0.01	0.01	0.01	0.00
S	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04	0.04
SUM	97.55	95.38	96.75	97.81	97.62	99.94	99.39	99.61	99.66	101.49

	1110	1120	1130	1140	1150	1160	1170	1180	1190	1200
SiO2	84.12	77.94	85.50	86.86	83.79	87.01	89.64	87.99	86.07	72.84
TiO2	0.27	0.37	0.25	0.26	0.28	0.24	0.20	0.24	0.28	0.43
Al2O3	6.83	8.72	6.97	6.84	6.94	6.42	5.54	6.28	5.99	8.95
Fe2O3(t)	1.62	2.41	1.64	1.70	1.78	1.48	1.37	1.55	1.72	2.82
MgO	0.80	1.20	0.79	0.76	0.79	0.70	0.56	0.69	0.74	1.36
CaO	2.51	4.01	2.45	2.66	3.56	2.78	2.08	2.72	2.86	7.27
MnO	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.04	0.07
Na2O	0.48	0.56	0.60	0.66	0.66	0.63	0.66	0.62	0.61	0.60
K2O	1.97	2.03	2.04	2.09	2.10	1.97	1.93	2.04	1.74	2.02
P2O5	0.05	0.06	0.05	0.00	0.05	0.01	0.01	0.01	0.05	0.06
S	0.01	0.00	0.00	0.04	0.01	0.04	0.03	0.04	0.01	0.01
SUM	98.69	97.36	100.31	101.90	99.99	101.31	102.05	102.22	100.11	96.43

	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300
SiO2	73.72	75.63	83.13	83.32	79.91	83.04	78.44	80.92	82.65	80.04
TiO2	0.40	0.31	0.20	0.25	0.40	0.23	0.24	0.20	0.20	0.23
Al2O3	9.75	9.34	6.50	7.36	7.67	6.95	7.73	7.06	6.83	7.20
Fe2O3(t)	2.59	2.00	1.34	1.76	2.24	1.43	1.60	1.53	1.44	1.63
MgO	1.27	0.98	0.66	0.76	1.00	0.66	0.75	0.69	0.63	0.72
CaO	4.55	4.50	3.49	2.93	3.59	3.93	4.72	3.87	3.08	4.04
MnO	0.05	0.06	0.03	0.03	0.05	0.03	0.04	0.04	0.04	0.04
Na2O	0.74	0.87	0.77	0.78	0.54	0.79	0.87	0.96	0.88	0.91
K2O	2.35	3.04	2.20	2.32	2.05	2.35	2.69	2.34	2.31	2.40
P2O5	0.12	0.06	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.05
S	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
SUM	95.56	96.78	98.37	99.58	97.52	99.45	97.13	97.66	98.12	97.28

	1310	1320	1330	1340	1350	1360	1370	1380	1390	1400
SiO2	77.81	80.64	76.95	80.35	82.37	84.37	79.40	81.57	72.24	76.45
TiO2	0.32	0.34	0.37	0.28	0.26	0.17	0.27	0.24	0.46	0.35
Al2O3	8.04	7.61	8.34	7.35	6.99	6.59	8.20	7.33	10.50	9.38
Fe2O3(t)	2.10	2.11	2.20	1.75	1.51	1.30	1.77	1.59	3.03	2.33
MgO	0.98	0.94	1.07	0.83	0.73	0.57	0.87	0.77	1.41	1.21
CaO	4.40	3.92	4.75	3.56	3.78	3.08	3.75	3.89	4.36	3.83
MnO	0.05	0.05	0.07	0.05	0.04	0.03	0.04	0.03	0.04	0.04
Na2O	0.64	0.60	0.69	0.72	0.74	0.85	0.82	0.73	0.67	0.75
K2O	2.37	2.14	2.30	2.36	2.49	2.51	2.81	2.63	2.76	2.71
P2O5	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.07	0.06
S	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
SUM	96.77	98.42	96.80	97.31	98.96	99.54	97.99	98.85	95.56	97.13

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	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500
SiO2	77.56	88.20	85.40	85.74	84.72	80.17	79.90	72.98	78.79	78.62
TiO2	0.30	0.18	0.21	0.24	0.19	0.28	0.29	0.41	0.31	0.30
Al2O3	8.38	6.03	6.52	6.91	6.53	8.25	7.98	10.18	8.23	8.09
Fe2O3(t)	1.97	1.34	1.58	1.42	1.41	2.07	2.02	3.01	2.05	2.16
MgO	0.99	0.60	0.68	0.70	0.59	1.04	1.02	1.49	1.13	1.04
CaO	4.61	2.78	2.76	2.94	2.75	3.39	3.53	4.52	4.01	4.18
MnO	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.07
Na2O	0.82	0.72	0.77	0.79	0.90	0.77	0.71	0.77	0.64	0.70
K2O	2.49	2.04	2.17	2.30	2.40	2.38	2.20	2.40	2.20	2.33
P2O5	0.05	0.00	0.01	0.00	0.04	0.07	0.06	0.06	0.06	0.06
S	0.01	0.04	0.06	0.04	0.01	0.01	0.01	0.01	0.01	0.01
SUM	97.22	101.96	100.19	101.11	99.57	98.45	97.77	95.86	97.48	97.56

	1510	1520	1530	1540	1550	1560	1570	1580	1590	1600
SiO2	85.93	86.72	74.31	68.57	61.31	65.23	61.93	66.96	73.04	69.30
TiO2	0.20	0.23	0.48	0.62	0.71	0.66	0.68	0.63	0.47	0.59
Al2O3	6.05	6.26	10.61	12.93	13.87	12.99	13.58	12.78	10.36	11.92
Fe2O3(t)	1.39	1.75	3.43	4.46	5.10	4.68	4.94	4.42	3.07	3.91
MgO	0.64	0.68	1.56	1.89	2.24	2.15	2.27	2.07	1.52	1.90
CaO	3.09	3.48	3.57	4.11	5.59	6.03	7.50	5.21	4.65	4.92
MnO	0.04	0.05	0.05	0.05	0.07	0.06	0.07	0.06	0.07	0.06
Na2O	0.76	0.66	0.43	0.39	0.36	0.38	0.44	0.39	0.50	0.39
K2O	2.04	1.99	2.32	2.54	2.60	2.41	2.48	2.50	2.31	2.37
P2O5	0.04	0.01	0.07	0.08	0.08	0.09	0.08	0.08	0.07	0.08
S	0.01	0.06	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
SUM	100.19	101.89	96.85	95.64	91.94	94.69	93.97	95.12	96.05	95.45