Appendix 1. Electron Microprobe Analyses of the Blanco Trough Glasses and VG-2 Basaltic Glass Standard.

A1.1 Introduction.

This appendix contains electron microprobe analyses of the Blanco Trough glasses performed at the Smithsonian Institution (Table XIV), and published by Melson et al. (1977), as well as new analyses of the original samples performed at Rensselaer Polytechnic Institute (Table XV). The samples are grouped by microprobe section in Table XIII. The VG-2 basaltic glass standard was analyzed after every five Blanco Trough samples to verify that calibrations did not drift. Table XVI contains the average of those analyses for each microprobe session, with the individual analyses reported in Table XVII. Run conditions and other information concerning the analytical procedures can be found in Section 4.2.

Mg-numbers are Mg/(Mg + Fe) x 100, and were calculated by casting all Fe as FeO* for ease of comparison. Colorimetric FeO determinations for twelve of the Blanco Trough samples were performed by Dr. I.S.E. Carmichael at U.C. Berkeley, and can be found in Table VII. Ca-numbers are Ca/(Ca + Na) x 100.

Table XIII

Blanco Trough glasses grouped by microprobe disk. Samples numbers in bold print appear "normal" in Smithsonian analyses.

VG-165 to 174	*VG-175 to 184*	*VG-332 to 341*
VG-169	VG-178	VG-332
VG-170		VG-337
VG-172		VG-338
VG-173		VG-339
		VG-340
		VG-341

VG-342 to 351	*VG-352 to 361*	*VG-362 to 371*
VG-342	VG-352	**VG-368**
VG-343	VG-353	**VG-369**
VG-344	VG-354	**VG-370**
VG-345	VG-355	**VG-371**
VG-346	VG-356	
VG-347	VG-357	
VG-348	VG-358	
VG-349	VG-359	
VG-350	VG-360	
VG-351		

Table XIII
(Continued)

VG-372 to 381	*VG-382 to 391*
VG-372	VG-382
VG-373	VG-383
VG-374	VG-384
VG-375	VG-385
VG-376	VG-386
VG-377	VG-387
VG-378	
VG-379	
VG-380	
VG-381	

Table XIV

Smithsonian microprobe analyses of glasses from the Blanco Trough.

Sample	*VG-169*	*VG-170*	*VG-172*	*VG-173*	*VG-178*
SiO_2	50.35	49.98	49.00	49.41	49.15
TiO_2	2.08	2.21	2.15	1.42	2.26
Al_2O_3	16.23	16.35	15.60	16.67	15.43
FeO*	11.05	11.40	11.04	9.77	11.70
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	6.60	6.56	7.12	8.23	7.28
CaO	11.32	10.66	10.84	11.77	10.42
Na_2O	2.93	2.94	2.97	2.68	3.11
K_2O	0.28	0.37	0.28	0.10	0.29
P_2O_5	0.16	0.21	0.18	0.12	0.22
Total	101.00	100.68	99.18	100.17	99.86
Mg#	51.6	50.6	53.5	60.0	52.6
Ca#	68.1	66.7	66.8	70.8	64.9
CaO/Al_2O_3	0.697	0.652	0.695	0.706	0.675

Sample	*VG-332*	*VG-337*	*VG-338*	*VG-339*	*VG-340*
SiO_2	48.86	49.02	48.94	49.01	48.93
TiO_2	1.54	1.60	1.74	1.79	1.73
Al_2O_3	16.33	15.75	15.59	15.41	15.61
FeO*	12.07	12.13	11.80	11.89	11.74
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	7.50	7.88	7.93	7.88	8.16
CaO	10.17	10.08	10.44	10.42	10.28
Na_2O	2.67	2.64	2.63	2.71	2.70
K_2O	0.15	0.18	0.20	0.20	0.20
P_2O_5	0.13	0.12	0.14	0.15	0.13
Total	99.42	99.10	99.41	99.46	99.48
Mg#	52.6	53.7	54.5	54.2	55.3
Ca#	67.8	67.8	68.7	68.0	67.8
CaO/Al_2O_3	0.623	0.640	0.670	0.676	0.659

Table XIV

(Continued)

Sample	*VG-341*	*VG-342*	*VG-343*	*VG-344*	*VG-345*
SiO_2	49.11	49.01	48.66	49.54	49.55
TiO_2	1.23	1.47	1.57	1.26	1.38
Al_2O_3	16.51	16.35	16.43	16.76	16.27
FeO*	12.01	12.31	11.94	12.00	12.57
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	8.14	8.16	7.78	8.20	8.04
CaO	9.76	9.50	10.34	9.82	8.98
Na_2O	2.66	2.68	2.66	2.65	2.65
K_2O	0.13	0.13	0.17	0.10	0.10
P_2O_5	0.08	0.14	0.14	0.09	0.10
Total	99.63	99.75	99.69	100.42	99.63
Mg#	54.7	54.2	53.7	54.9	53.3
Ca#	67.0	66.2	68.2	67.2	65.2
CaO/Al_2O_3	0.591	0.581	0.629	0.586	0.552

Sample	*VG-346*	*VG-347*	*VG-348*	*VG-349*	*VG-350*
SiO_2	49.29	49.36	48.34	49.12	49.71
TiO_2	2.23	1.53	0.83	1.58	1.93
Al_2O_3	14.86	16.53	17.56	16.35	15.63
FeO*	11.42	12.23	12.42	12.04	11.84
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	7.30	7.63	8.80	7.61	7.24
CaO	10.60	10.27	9.71	10.36	9.96
Na_2O	2.94	2.70	2.37	2.70	2.95
K_2O	0.30	0.16	0.06	0.17	0.25
P_2O_5	0.21	0.14	0.06	0.13	0.16
Total	99.15	100.55	100.15	100.06	99.67
Mg#	53.3	52.7	55.8	53.0	52.2
Ca#	66.6	67.8	69.4	67.9	65.1
CaO/Al_2O_3	0.713	0.621	0.553	0.634	0.637

Table XIV

(Continued)

Sample	*VG-351*	*VG-352*	*VG-353*	*VG-354*	*VG-355*
SiO_2	49.76	49.53	48.24	49.67	49.51
TiO_2	2.23	1.81	1.38	1.31	2.21
Al_2O_3	14.73	15.37	16.89	16.45	15.15
FeO*	11.14	11.81	12.17	11.97	11.45
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	6.88	7.21	7.10	7.88	6.89
CaO	10.58	9.99	9.76	9.95	10.49
Na_2O	3.06	2.77	2.47	2.69	2.94
K_2O	0.35	0.24	0.14	0.15	0.30
P_2O_5	0.25	0.17	0.10	0.09	0.22
Total	98.98	98.90	98.25	100.16	99.16
Mg#	52.4	52.1	51.0	54.0	51.8
Ca#	65.6	66.6	68.6	67.1	66.3
CaO/Al_2O_3	0.718	0.650	0.578	0.605	0.692

Sample	*VG-356*	*VG-357*	*VG-358*	*VG-359*	*VG-360*
SiO_2	50.09	50.09	49.64	50.42	50.15
TiO_2	1.99	2.15	2.16	1.95	2.54
Al_2O_3	15.24	15.20	14.96	14.98	14.73
FeO*	11.94	11.24	11.32	12.26	11.08
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	7.38	6.78	7.49	6.96	6.56
CaO	10.16	10.47	10.54	10.28	11.27
Na_2O	3.03	2.98	2.87	2.70	2.98
K_2O	0.19	0.37	0.30	0.24	0.39
P_2O_5	0.17	0.23	0.22	0.17	0.29
Total	100.19	99.51	99.50	99.96	99.99
Mg#	52.4	51.8	54.1	50.3	51.3
Ca#	64.9	66.0	67.0	67.8	67.6
CaO/Al_2O_3	0.667	0.689	0.705	0.686	0.765

Table XIV

(Continued)

Sample	*VG-368*	*VG-369*	*VG-370*	*VG-371*	*VG-372*
SiO_2	50.37	50.51	50.83	50.89	49.95
TiO_2	1.23	1.23	1.21	1.28	2.26
Al_2O_3	14.69	14.85	14.98	14.68	14.82
FeO*	11.02	10.80	10.88	11.16	11.52
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	7.95	7.51	7.46	7.66	7.13
CaO	11.36	11.64	11.63	11.52	10.68
Na_2O	2.26	2.20	2.17	2.21	3.03
K_2O	0.07	0.06	0.06	0.07	0.33
P_2O_5	0.10	0.08	0.09	0.07	0.22
Total	99.05	98.88	99.31	99.54	99.94
Mg#	56.3	55.3	55.0	55.0	52.5
Ca#	73.5	74.5	74.8	74.2	66.1
CaO/Al_2O_3	0.773	0.784	0.776	0.785	0.721

Sample	*VG-373*	*VG-374*	*VG-375*	*VG-376*	*VG-377*
SiO_2	48.14	49.05	48.96	49.36	47.53
TiO_2	0.79	2.20	2.24	1.91	0.82
Al_2O_3	18.08	14.73	14.70	15.29	17.61
FeO*	10.63	11.27	11.24	10.24	10.27
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	8.78	7.47	7.57	7.16	8.82
CaO	11.71	10.64	10.52	11.36	11.67
Na_2O	2.44	2.87	2.98	2.91	2.44
K_2O	0.06	0.31	0.31	0.30	0.08
P_2O_5	0.04	0.21	0.22	0.19	0.07
Total	100.67	98.75	98.74	98.72	99.31
Mg#	59.6	54.2	54.6	55.5	60.5
Ca#	72.6	67.2	66.1	68.3	72.5
CaO/Al_2O_3	0.648	0.722	0.716	0.743	0.663

Table XIV

(Continued)

Sample	*VG-378*	*VG-379*	*VG-380*	*VG-381*	*VG-382*
SiO_2	49.37	49.68	48.82	49.21	49.92
TiO_2	2.62	1.95	2.27	2.22	2.15
Al_2O_3	14.67	15.46	14.67	14.80	15.46
FeO*	11.74	10.07	11.23	11.34	11.44
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	6.85	7.23	7.44	7.21	7.42
CaO	10.17	11.30	10.55	10.50	10.58
Na_2O	3.17	2.78	3.02	3.09	2.98
K_2O	0.39	0.28	0.32	0.31	0.30
P_2O_5	0.29	0.19	0.19	0.23	0.22
Total	99.27	98.94	98.51	98.91	100.47
Mg#	51.0	49.7	54.1	53.1	53.6
Ca#	63.9	69.2	65.9	65.2	66.2
CaO/Al_2O_3	0.693	0.731	0.719	0.709	0.684

Sample	*VG-383*	*VG-384*	*VG-385*	*VG-386*	*VG-387*
SiO_2	50.35	50.25	49.51	50.18	50.99
TiO_2	2.21	2.19	1.22	1.87	1.93
Al_2O_3	14.86	15.00	16.87	15.62	15.18
FeO*	11.43	11.51	11.97	12.20	11.83
MnO	n.d.	n.d.	n.d.	n.d.	n.d.
MgO	7.60	7.15	8.07	7.53	7.87
CaO	10.92	10.57	9.99	9.71	10.41
Na_2O	2.88	3.00	2.69	2.72	2.81
K_2O	0.31	0.34	0.12	0.24	0.25
P_2O_5	0.20	0.21	0.07	0.17	0.15
Total	100.76	100.22	100.51	100.24	101.42
Mg#	54.2	52.5	54.6	52.4	54.3
Ca#	67.7	66.1	67.2	66.4	67.2
CaO/Al_2O_3	0.735	0.705	0.592	0.622	0.686

Table XV

R.P.I. microprobe analyses of glasses from the Blanco Trough.

Sample	*VG-169*	σ	*VG-170*	σ	*VG-172*	σ
SiO_2	49.71	±0.22	49.28	±0.11	49.76	±0.12
TiO_2	1.95	±0.04	2.13	±0.08	2.19	±0.13
Al_2O_3	14.53	±0.14	14.96	±0.10	15.10	±0.05
FeO*	10.50	±0.16	10.82	±0.12	10.73	±0.12
MnO	0.21	±0.01	0.19	±0.02	0.21	±0.03
MgO	6.92	±0.02	6.93	±0.03	7.64	±0.06
CaO	11.42	±0.11	10.54	±0.08	10.68	±0.09
Na_2O	3.01	±0.08	3.23	±0.04	3.15	±0.09
K_2O	0.28	±0.02	0.37	±0.01	0.31	±0.02
Total	98.53		98.45		99.77	
n	5		5		5	
Mg#	54.0		53.3		55.9	
Ca#	67.7		64.3		65.2	
CaO/Al_2O_3	0.786		0.705		0.707	

Sample	*VG-173*	σ	*VG-178*	σ	*VG-332*	σ
SiO_2	48.85	±0.21	48.78	±0.24	48.83	±0.20
TiO_2	1.35	±0.02	2.15	±0.06	1.19	±0.07
Al_2O_3	16.15	±0.11	14.72	±0.15	16.43	±0.09
FeO*	9.36	±0.11	11.22	±0.35	10.15	±0.10
MnO	0.18	±0.01	0.17	±0.02	0.17	±0.01
MgO	8.51	±0.09	7.61	±0.05	8.31	±0.04
CaO	11.88	±0.10	10.64	±0.09	11.22	±0.09
Na_2O	2.90	±0.03	3.22	±0.04	2.88	±0.04
K_2O	0.13	±0.01	0.32	±0.02	0.13	±0.02
Total	99.31		98.83		99.31	
n	5		5		5	
Mg#	61.8		54.7		59.3	
Ca#	69.4		64.6		68.3	
CaO/Al_2O_3	0.736		0.723		0.683	

Table XV
(Continued)

Sample	*VG-337*	σ	*VG-338*	σ	*VG-339*	σ
SiO_2	49.45	±0.26	50.07	±0.42	48.19	±0.25
TiO_2	1.83	±0.05	1.85	±0.04	1.52	±0.05
Al_2O_3	15.07	±0.07	15.33	±0.19	16.10	±0.05
FeO*	10.29	±0.07	10.25	±0.09	10.70	±0.05
MnO	0.17	±0.02	0.16	±0.02	0.19	±0.02
MgO	7.21	±0.06	7.41	±0.07	7.82	±0.03
CaO	11.33	±0.12	11.61	±0.09	11.32	±0.16
Na_2O	3.06	±0.03	2.84	±0.17	2.89	±0.03
K_2O	0.27	±0.01	0.28	±0.01	0.18	±0.01
Total	98.68		99.80		98.91	
n	5		5		5	
Mg#	55.5		56.3		56.6	
Ca#	67.2		69.3		68.4	
CaO/Al_2O_3	0.752		0.757		0.703	

Sample	*VG-340*	σ	*VG-341*	σ	*VG-342*	σ
SiO_2	48.74	±0.43	48.29	±0.15	48.46	±0.24
TiO_2	2.19	±0.05	1.47	±0.08	1.48	±0.06
Al_2O_3	14.67	±0.15	16.17	±0.01	16.35	±0.14
FeO*	10.91	±0.11	10.61	±0.06	10.64	±0.11
MnO	0.20	±0.03	0.20	±0.02	0.18	0.01
MgO	7.57	±0.07	7.86	±0.02	8.11	±0.04
CaO	10.83	±0.06	11.25	±0.11	10.93	±0.08
Na_2O	3.15	±0.02	2.88	±0.04	2.91	±0.04
K_2O	0.32	±0.01	0.19	±0.01	0.19	±0.01
Total	98.58		98.92		99.25	
n	5		5		5	
Mg#	55.3		56.9		57.6	
Ca#	65.5		68.3		67.5	
CaO/Al_2O_3	0.738		0.696		0.669	

Table XV
(Continued)

Sample	*VG-343*	σ	*VG-344*	σ	*VG-345*	σ
SiO_2	48.52	±0.12	48.78	±0.27	49.26	±0.14
TiO_2	1.55	±0.05	1.23	±0.07	1.58	±0.06
Al_2O_3	16.35	±0.07	16.60	±0.05	16.13	±0.10
FeO*	10.66	±0.11	10.17	±0.09	9.52	±0.19
MnO	0.20	±0.01	0.18	±0.02	0.19	±0.01
MgO	8.08	±0.02	8.50	±0.06	8.66	±0.05
CaO	10.90	±0.08	10.88	±0.01	11.67	±0.08
Na_2O	2.87	±0.02	2.91	±0.04	2.81	±0.05
K_2O	0.19	±0.02	0.13	±0.01	0.12	±0.01
Total	99.32		99.38		99.94	
n	5		5		5	
Mg#	59.5		59.8		61.9	
Ca#	67.7		67.4		69.6	
CaO/Al_2O_3	0.667		0.655		0.723	

Sample	*VG-346*	σ	*VG-347*	σ	*VG-348*	σ
SiO_2	49.20	±0.22	48.75	±0.25	48.09	±0.08
TiO_2	2.17	±0.05	1.66	±0.08	0.91	±0.10
Al_2O_3	14.94	±0.12	16.12	±0.12	17.41	±0.06
FeO*	10.89	±0.09	10.80	±0.19	10.35	±0.11
MnO	0.21	±0.01	0.20	±0.03	0.22	±0.03
MgO	7.62	±0.03	8.02	±0.07	9.22	±0.06
CaO	10.40	±0.08	11.15	±0.13	11.52	±0.19
Na_2O	3.22	±0.04	2.88	±0.03	2.60	±0.02
K_2O	0.31	±0.01	0.19	±0.03	0.09	±0.01
Total	98.96		99.77		100.41	
n	5		5		4	
Mg#	55.5		57.0		61.3	
Ca#	64.1		68.1		71.0	
CaO/Al_2O_3	0.696		0.692		0.662	

Table XV

(Continued)

Sample	*VG-349*	σ	*VG-350*	σ	*VG-351*	σ
SiO_2	48.67	±0.14	49.41	±0.10	49.31	±0.21
TiO_2	1.47	±0.06	1.88	±0.07	2.22	±0.14
Al_2O_3	16.35	±0.09	15.51	±0.14	14.90	±0.05
FeO*	10.60	±0.07	10.25	±0.11	10.98	±0.17
MnO	0.21	±0.02	0.20	±0.02	0.15	±0.05
MgO	8.10	±0.05	7.61	±0.10	7.27	±0.05
CaO	10.81	±0.33	11.00	±0.09	10.29	±0.08
Na_2O	2.90	±0.03	3.24	±0.02	3.33	±0.03
K_2O	0.19	±0.02	0.27	±0.01	0.37	±0.01
Total	99.30		99.37		98.82	
n	5		5		5	
Mg#	57.7		57.0		54.1	
Ca#	67.3		65.2		63.1	
CaO/Al_2O_3	0.661		0.709		0.691	

Sample	*VG-352*	σ	*VG-353*	σ	*VG-354*	σ
SiO_2	49.40	±0.22	48.90	±0.07	48.86	±0.27
TiO_2	1.91	±0.09	1.41	±0.13	1.31	±0.05
Al_2O_3	15.35	±0.15	15.97	±0.27	16.40	±0.05
FeO*	10.38	±0.13	10.71	±0.21	10.23	±0.14
MnO	0.20	±0.01	0.19	±0.02	0.19	±0.03
MgO	7.88	±0.03	7.90	±0.21	8.23	±0.05
CaO	10.80	±0.09	10.96	±0.02	10.89	±0.05
Na_2O	3.08	±0.04	2.99	±0.03	2.91	±0.05
K_2O	0.25	±0.03	0.15	±0.01	0.15	±0.01
Total	99.25		99.18		99.17	
n	5		5		5	
Mg#	57.5		56.8		58.9	
Ca#	66.0		66.9		67.4	
CaO/Al_2O_3	0.704		0.686		0.664	

Table XV

(Continued)

Sample	*VG-355*	*σ*	*VG-356*	*σ*	*VG-357*	*σ*
SiO_2	49.43	±0.15	49.74	±0.19	49.49	±0.08
TiO_2	2.16	±0.04	1.97	±0.08	2.20	±0.09
Al_2O_3	14.90	±0.10	15.15	±0.10	14.89	±0.01
FeO*	11.23	±0.08	10.33	±0.19	11.06	±0.08
MnO	0.21	±0.02	0.20	±0.01	0.20	±0.01
MgO	7.07	±0.03	7.51	±0.15	6.91	±0.04
CaO	10.59	±0.10	11.08	±0.08	10.58	±0.08
Na_2O	3.29	±0.04	2.96	±0.04	3.31	±0.02
K_2O	0.30	±0.01	0.25	±0.02	0.35	±0.01
Total	99.18		99.19		98.99	
n	5		5		5	
Mg#	52.9		56.4		52.7	
Ca#	64.0		67.4		63.8	
CaO/Al_2O_3	0.711		0.731		0.711	

Sample	*VG-358*	*σ*	*VG-359*	*σ*	*VG-360*	*σ*
SiO_2	49.13	±0.13	49.89	±0.34	50.41	±0.27
TiO_2	2.14	±0.12	1.88	±0.06	2.63	±0.21
Al_2O_3	14.78	±0.02	14.66	±0.05	14.72	±0.14
FeO*	11.13	±0.07	10.77	±0.11	11.90	±0.21
MnO	0.20	±0.03	0.20	±0.02	0.22	±0.03
MgO	7.49	±0.05	7.03	±0.03	6.90	±0.08
CaO	10.69	±0.05	11.36	±0.11	10.25	±0.10
Na_2O	3.20	±0.02	2.99	±0.03	2.93	±0.22
K_2O	0.30	±0.01	0.25	±0.01	0.43	±0.01
Total	99.06		99.03		100.39	
n	5		5		5	
Mg#	54.5		53.8		50.8	
Ca#	64.9		67.7		65.9	
CaO/Al_2O_3	0.723		0.775		0.696	

Table XV
(Continued)

Sample	*VG-368*	σ	*VG-369*	σ	*VG-370*	σ
SiO_2	49.31	±0.17	48.99	±0.18	49.67	±0.13
TiO_2	2.08	±0.06	2.15	±0.08	2.15	±0.08
Al_2O_3	14.77	±0.22	14.63	±0.04	14.81	±0.04
FeO*	10.94	±0.14	11.21	±0.13	11.10	±0.16
MnO	0.17	±0.17	0.18	±0.02	0.19	±0.02
MgO	7.53	±0.14	7.34	±0.04	6.87	±0.02
CaO	10.51	±0.22	10.73	±0.08	10.73	±0.02
Na_2O	3.12	±0.06	3.22	±0.04	3.31	±0.05
K_2O	0.30	±0.01	0.29	±0.01	0.38	±0.02
Total	98.73		98.74		99.21	
n	5		5		5	
Mg#	55.1		53.9		52.5	
Ca#	65.0		64.8		64.2	
CaO/Al_2O_3	0.712		0.733		0.725	

Sample	*VG-371*	σ	*VG-372*	σ	*VG-373*	σ
SiO_2	49.62	±0.15	49.39	±0.23	48.22	±0.25
TiO_2	2.21	±0.10	2.12	±0.04	0.79	±0.05
Al_2O_3	14.82	±0.08	14.67	±0.02	17.36	±0.06
FeO*	10.93	±0.12	11.15	±0.10	10.35	±0.07
MnO	0.22	±0.02	0.21	±0.02	0.17	±0.01
MgO	6.82	±0.04	7.35	±0.04	9.11	±0.05
CaO	10.75	±0.12	10.67	±0.09	11.56	±0.10
Na_2O	3.33	±0.04	3.22	±0.02	2.53	±0.06
K_2O	0.36	±0.02	0.31	±0.01	0.07	±0.01
Total	99.06		99.09		100.16	
n	5		5		5	
Mg#	52.7		54.0		61.1	
Ca#	64.1		64.7		71.6	
CaO/Al_2O_3	0.725		0.727		0.666	

Table XV
(Continued)

Sample	*VG-374*	σ	*VG-375*	σ	*VG-376*	σ
SiO_2	49.41	±0.12	49.38	±0.15	49.87	±0.17
TiO_2	2.14	±0.08	2.14	±0.11	1.98	±0.11
Al_2O_3	14.71	±0.06	14.59	±0.04	15.33	±0.08
FeO*	11.30	±0.07	11.03	±0.26	9.96	±0.22
MnO	0.22	±0.01	0.22	±0.01	0.16	±0.02
MgO	7.55	±0.02	7.57	±0.02	7.42	±0.02
CaO	10.83	±0.09	10.77	±0.06	11.14	±0.15
Na_2O	3.21	±0.03	3.17	±0.02	2.93	±0.06
K_2O	0.28	±0.01	0.30	±0.01	0.30	±0.03
Total	99.65		99.17		99.09	
n	5		5		5	
Mg#	54.4		55.0		57.0	
Ca#	65.1		65.2		67.7	
CaO/Al_2O_3	0.736		0.738		0.727	

Sample	*VG-377*	σ	*VG-378*	σ	*VG-379*	σ
SiO_2	48.05	±0.08	49.48	±0.18	50.00	±0.32
TiO_2	0.80	±0.08	2.42	±0.04	1.83	±0.07
Al_2O_3	17.19	±0.02	14.33	±0.06	15.22	±0.05
FeO*	10.28	±0.12	11.69	±0.11	10.40	±0.06
MnO	0.15	±0.02	0.23	±0.01	0.19	±0.01
MgO	9.00	±0.03	6.96	±0.04	7.43	±0.03
CaO	11.72	±0.09	10.21	±0.06	11.43	±0.04
Na_2O	2.59	±0.02	3.34	±0.03	3.04	±0.03
K_2O	0.08	±0.01	0.41	±0.01	0.26	±0.01
Total	99.86		99.07		99.80	
n	5		5		5	
Mg#	61.0		51.5		56.0	
Ca#	71.4		62.8		67.5	
CaO/Al_2O_3	0.682		0.712		0.751	

Table XV

(Continued)

Sample	*VG-380*	σ	*VG-381*	σ	*VG-382*	σ
SiO_2	49.32	±0.18	49.53	±0.20	49.54	±0.12
TiO_2	2.23	±0.11	2.17	±0.04	2.20	±0.03
Al_2O_3	14.72	±0.09	14.72	±0.04	14.77	±0.05
FeO*	11.15	±0.09	11.42	±0.18	11.28	±0.10
MnO	0.20	±0.01	0.20	±0.03	0.21	±0.02
MgO	7.76	±0.10	7.33	±0.05	7.54	±0.05
CaO	10.45	±0.15	10.72	±0.09	10.71	±0.11
Na_2O	3.15	±0.09	3.23	±0.03	3.21	±0.02
K_2O	0.32	±0.03	0.30	±0.02	0.30	±0.01
Total	99.30		99.62		99.76	
n	5		5		5	
Mg#	55.4		53.4		54.4	
Ca#	64.7		64.7		64.8	
CaO/Al_2O_3	0.710		0.728		0.725	

Sample	*VG-383*	σ	*VG-384*	σ	*VG-385*	σ
SiO_2	50.42	±0.21	50.00	±0.32	49.26	±0.07
TiO_2	2.18	±0.03	2.16	±0.04	1.25	±0.09
Al_2O_3	14.90	±0.05	14.87	±0.05	16.31	±0.04
FeO*	11.71	±0.11	11.26	±0.31	10.55	±0.04
MnO	0.21	±0.02	0.19	±0.02	0.17	±0.01
MgO	7.68	±0.03	7.01	±0.40	8.20	±0.04
CaO	10.74	±0.10	10.71	±0.04	11.23	±0.09
Na_2O	2.94	±0.13	3.19	±0.26	2.94	±0.01
K_2O	0.31	±0.02	0.36	±0.04	0.12	±0.01
Total	101.09		99.75		100.03	
n	5		5		5	
Mg#	53.9		52.6		58.1	
Ca#	66.9		65.0		67.8	
CaO/Al_2O_3	0.721		0.720		0.689	

Table XV
(Continued)

Sample	*VG-386*	*σ*	*VG-387*	*σ*
SiO_2	49.97	±0.12	50.89	±0.23
TiO_2	1.80	±0.10	1.94	±0.08
Al_2O_3	15.16	±0.03	15.41	±0.12
FeO*	10.41	±0.09	11.14	±0.05
MnO	0.17	±0.02	0.19	±0.02
MgO	7.48	±0.08	7.80	±0.05
CaO	11.40	±0.08	11.19	±0.12
Na_2O	3.04	±0.05	2.76	±0.04
K_2O	0.25	±0.01	0.26	±0.01
Total	99.68		101.58	
n	5		5	
Mg#	56.2		55.5	
Ca#	67.4		69.1	
CaO/Al_2O_3	0.752		0.726	

Table XVI

Comparison of averages of analyses of the VG-2 basaltic glass standard from the three electron microprobe sessions during which the Blanco Trough glasses were re-analyzed.

Sample	*1*	*σ*	*2*	*σ*	*3*	*σ*
SiO_2	50.89	±0.22	50.28	±0.29	50.73	±0.43
TiO_2	1.90	±0.08	1.79	±0.03	1.78	±0.08
Al_2O_3	13.81	±0.05	13.67	±0.32	13.78	±0.07
FeO*	11.77	±0.10	11.53	±0.08	11.87	±0.18
MnO	0.20	±0.07	0.21	±0.02	0.20	±0.02
MgO	7.03	±0.07	7.00	±0.09	6.92	±0.03
CaO	11.05	±0.23	11.19	±0.23	11.36	±0.13
Na_2O	2.81	±0.02	2.82	±0.04	2.86	±0.05
K_2O	0.21	±0.02	0.21	±0.02	0.19	±0.01
Total	99.67		98.70		99.69	
n	3		6		6	
Mg#	51.6		52.0		51.0	
Ca#	68.5		68.7		68.7	
CaO/Al_2O_3	0.800		0.819		0.824	

(1) RPI analysis of VG-2 from 4/2/90. Blanco Trough glasses analyzed on this date: VG-172, VG-345, VG-347, VG-348, VG-356, VG-360, VG-368, VG-373, VG-376, VG-380.

(2) RPI analysis of VG-2 from 4/16/90. Blanco Trough glasses analyzed on this date: VG-169, VG-170, VG-173, VG-178, VG-332, VG-337, VG-338, VG-339, VG-340, VG-341, VG-342, VG-343, VG-344, VG-346, VG-349, VG-350, VG-351, VG-352, VG-353, VG-354.

(3) RPI analysis of VG-2 from 5/4/90. Blanco Trough glasses analyzed on this date: VG-355, VG-357, VG-358, VG-359, VG-369, VG-370, VG-371, VG-372, VG-374, VG-375, VG-377, VG-378, VG-379, VG-381, VG-382, VG-383, VG-384, VG-385, VG-386, VG-387.

Table XVII

Microprobe analyses of the VG-2 basaltic glass standard performed during re-analysis of the Blanco Trough glasses.

Date analyzed	*4/2/90*	*4/2/90*	*4/2/90*	*4/16/90*	*4/16/90*
SiO_2	50.93	50.66	51.09	50.32	50.42
TiO_2	1.81	1.95	1.94	1.84	1.82
Al_2O_3	13.75	13.85	13.82	13.80	13.66
FeO*	11.66	11.80	11.85	11.56	11.56
MnO	0.14	0.28	0.18	0.21	0.21
MgO	7.09	6.95	7.05	6.97	6.93
CaO	10.79	11.22	11.14	11.28	11.47
Na_2O	2.83	2.79	2.80	2.89	2.76
K_2O	0.19	0.22	0.22	0.22	0.21
P_2O_5	n.d.	n.d.	n.d.	n.d.	n.d.
Total	99.20	99.72	100.10	99.09	99.04
Mg#	52.0	51.2	51.5	51.8	51.7
Ca#	67.8	69.0	68.7	68.3	69.7
CaO/Al_2O_3	0.785	0.810	0.806	0.817	0.840

Date analyzed	*4/16/90*	*4/16/90*	*4/16/90*	*4/16/90*	*5/4/90*
SiO_2	50.01	50.39	49.87	50.65	50.51
TiO_2	1.77	1.79	1.75	1.78	1.78
Al_2O_3	13.63	13.81	13.91	13.95	13.75
FeO*	11.39	11.55	11.64	11.50	11.90
MnO	0.23	0.17	0.21	0.19	0.22
MgO	6.89	7.03	7.07	7.14	6.92
CaO	11.36	11.17	10.93	10.91	11.22
Na_2O	2.78	2.84	2.81	2.82	2.83
K_2O	0.20	0.24	0.20	0.19	0.19
P_2O_5	n.d.	n.d.	n.d.	n.d.	n.d.
Total	98.27	99.00	98.39	99.13	99.32
Mg#	51.9	52.0	52.0	52.5	50.9
Ca#	69.3	68.5	68.2	68.1	68.7
CaO/Al_2O_3	0.833	0.809	0.786	0.782	0.816

Table XVII
(Continued)

Date analyzed	*5/4/90*	*5/4/90*	*5/4/90*	*5/4/90*	*5/4/90*
SiO_2	50.21	51.04	50.93	51.07	51.00
TiO_2	1.78	1.66	1.90	1.72	1.83
Al_2O_3	13.68	13.84	13.76	13.86	13.79
FeO*	11.69	11.89	11.63	12.09	12.04
MnO	0.20	0.16	0.22	0.20	0.20
MgO	6.90	6.93	6.88	6.90	6.97
CaO	11.47	11.42	11.46	11.19	11.41
Na_2O	2.86	2.92	2.87	2.91	2.79
K_2O	0.19	0.18	0.21	0.20	0.20
P_2O_5	n.d.	n.d.	n.d.	n.d.	n.d.
Total	98.98	100.04	99.86	100.14	100.23
Mg#	51.3	51.0	51.3	50.4	50.8
Ca#	68.9	68.4	68.8	68.0	69.3
CaO/Al_2O_3	0.838	0.825	0.833	0.807	0.827