

## Appendix A. Plagioclase-liquid experiments used for calibration of hygrometer/thermometer

Sample I.D.	Xan	Xab	T (°C)	P (bars)	SiO2 (wt%)	TiO2 (wt%)	Al2O3 (wt%)	FeOT (wt%)	MgO (wt%)	CaO (wt%)	Na2O (wt%)	K2O (wt%)	H2O (wt%)	Total	Reference
PEM 12-15	0.644	0.348	1100	483	61.40	0.61	16.10	3.53	2.80	4.72	4.60	1.72	2.2	97.7	1
PEM 12-12	0.710	0.270	1000	1475	60.40	0.58	15.80	3.62	2.00	4.95	3.90	1.83	4.4	97.5	1
PEM 12-18	0.762	0.223	975	1800	60.90	0.67	16.50	3.68	1.90	4.66	5.20	1.78	5.1	100.4	1
PEM 12-19	0.650	0.342	975	1008	61.80	0.61	16.50	3.77	1.70	4.91	3.50	1.87	3.6	98.3	1
PEM 12-22	0.576	0.412	960	710	64.00	0.74	15.00	3.49	1.60	3.87	4.00	2.07	3.0	97.8	1
PEM 12-16	0.618	0.373	950	1717	63.30	0.37	15.30	2.20	1.00	3.07	4.40	2.32	5.1	97.1	1
PEM 12-10	0.618	0.376	950	1455	63.10	0.63	15.50	2.65	1.10	3.35	3.90	2.27	4.5	97.0	1
PEM 12-4	0.626	0.366	1000	1055	63.40	0.68	16.20	3.03	1.50	3.62	3.60	2.01	3.7	97.7	1
PEM 22-1	0.685	0.310	1050	989	56.10	0.88	17.00	5.04	3.10	5.40	5.10	1.81	3.5	97.9	1
PEM 22-9	0.690	0.304	1125	517	54.30	0.50	18.90	5.37	3.80	7.28	5.00	1.27	2.3	98.7	1
PMAS911-8	0.550	0.430	1050	479	60.00	0.00	19.41	2.92	1.25	5.85	5.90	1.89	2.4	99.6	2
Z-342-17	0.560	0.430	925	1324	64.28	0.63	15.49	2.25	2.12	3.38	4.34	2.27	4.4	100.1	3
Z-342-12	0.600	0.390	950	1069	62.87	0.90	17.01	2.64	1.93	4.49	4.36	2.06	3.8	101.0	3
Z-348-06	0.650	0.340	1000	1172	62.35	0.73	16.06	2.66	1.65	4.22	4.24	2.23	3.9	99.1	3
sc-80	0.626	0.364	995	500	70.63	0.29	13.30	2.01	0.86	3.45	3.54	1.72	2.5	98.3	4
sc-63	0.632	0.358	950	850	69.79	0.47	13.45	1.80	0.85	3.41	3.41	1.61	3.4	98.2	4
sc-51	0.530	0.460	875	1000	73.82	0.19	11.52	1.23	0.47	1.89	3.30	2.08	4.0	98.5	4
sc-73	0.698	0.292	950	1100	70.70	0.38	13.60	1.82	0.77	3.45	3.45	1.63	4.0	99.8	4
sc-53	0.603	0.387	900	1150	70.55	0.28	12.22	2.08	0.95	3.41	3.50	1.70	4.3	99.0	4
sc-10	0.580	0.410	875	1250	73.21	0.28	11.95	1.22	0.47	2.16	3.11	1.79	4.5	98.7	4
sc-26	0.599	0.391	875	1600	71.04	0.19	12.82	1.31	0.56	2.62	3.46	1.68	5.2	98.9	4
sc-69	0.526	0.464	825	1750	71.73	0.18	11.89	1.01	0.37	2.12	3.04	1.94	5.6	97.9	4
Costa-86	0.570	0.405	875	2000	66.24	0.26	15.18	1.11	0.77	2.65	4.11	2.94	5.7	99.0	5
Costa-94	0.457	0.520	850	2000	66.41	0.32	14.61	1.27	0.22	1.99	3.34	3.19	5.6	97.0	5
Costa-97	0.549	0.430	875	2030	64.56	0.35	14.93	2.56	0.65	2.69	3.99	2.86	5.7	98.2	5
M PID/22	0.809	0.187	951	2126	58.24	0.44	15.77	5.54	2.03	5.37	3.28	0.95	5.3	97.0	6
Luhr-185	0.598	0.386	900	2000	55.44	0.45	18.00	4.18	0.92	4.97	4.52	3.20	5.2	97.8	7
Luhr-119	0.721	0.268	950	2000	56.51	0.60	17.72	0.82	1.32	6.08	4.24	2.97	5.2	97.7	7
79-35q #4	0.933	0.067	1050	2000	46.34	0.67	17.82	7.68	6.11	11.69	2.57	0.11	4.8	97.8	8
79-35q #11	0.927	0.071	1035	2000	45.47	0.67	18.28	8.06	5.91	11.23	2.86	0.10	4.8	97.4	8
79-35q #10	0.920	0.080	1025	2000	45.71	0.68	18.15	8.16	5.93	11.36	2.78	0.10	4.8	97.7	8
82-66 #3	0.884	0.116	1012	2000	49.20	1.00	18.04	8.02	4.24	8.92	3.68	0.42	4.9	98.4	8
82-66 #5	0.911	0.088	1000	2000	49.17	0.99	18.01	7.23	4.51	9.14	3.21	0.75	4.9	97.9	8
8735a #3	0.852	0.145	970	2000	48.82	1.19	18.08	7.82	3.88	8.22	4.21	0.94	5.0	98.2	8
8735a #11	0.815	0.181	965	2000	50.11	1.04	18.09	7.19	3.45	8.08	4.28	1.16	5.1	98.4	8
Gardner-3a	0.428	0.506	875	1500	69.30	0.34	13.75	1.95	0.43	1.87	4.72	2.06	5.0	99.4	9
Gardner-3b	0.370	0.547	825	1500	68.95	0.28	13.71	1.59	0.40	1.91	4.79	2.13	5.2	98.9	9
Gardner-14a	0.536	0.417	875	2500	67.47	0.28	14.66	1.54	0.64	2.45	4.67	1.79	6.7	100.2	9
Gardner-14b	0.526	0.427	825	2500	68.14	0.29	14.55	1.48	0.67	2.34	5.05	1.79	7.0	101.3	9
Wagner-12	0.86	0.143	1050	1000	50.31	1.08	17.41	8.85	5.11	9.04	3.56	0.46	3.4	99.2	10
Wagner-14	0.818	0.177	1045	1000	51.07	1.14	17.09	8.11	4.64	8.78	3.63	0.52	3.4	98.4	10
Wagner-13	0.791	0.206	1035	1000	51.19	1.16	16.71	8.16	4.40	8.55	3.89	0.57	3.5	98.1	10
Sissonb-10	0.830	0.160	1050	1000	53.20	1.18	17.20	8.12	5.03	8.51	3.53	0.87	3.4	101.1	11
Holtz-1	0.567	0.329	825	3000	64.38	0.24	14.36	2.00	0.40	2.89	3.17	2.54	7.0	97.0	12
Holtz-7	0.708	0.217	850	3000	63.57	0.32	14.68	2.18	0.4	3.23	3.27	2.39	6.9	97.0	12

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WD-8A	0.667	0.323	1149	1	64.30	0.80	14.50	5.76	4.80	4.75	2.40	1.78	0.0	99.1	1
S4-3-75	0.680	0.298	1179	1	49.30	2.55	14.90	13.20	5.71	9.14	2.65	0.68	0.0	98.7	13
S4-3-77	0.653	0.336	1157	1	48.90	2.62	13.90	12.50	5.54	9.10	3.04	0.78	0.0	98.4	13
S4-83C-72	0.594	0.390	1150	1	48.00	4.03	13.80	16.80	4.30	7.51	3.06	1.20	0.0	99.4	13
Grove 139	0.626	0.337	1161	1	56.12	1.27	15.20	8.76	5.43	7.80	3.42	1.16	0.0	99.2	14
Grove 147	0.651	0.351	1144	1	57.20	1.31	14.50	8.74	4.87	7.58	3.52	1.34	0.0	99.1	14
Grove 157	0.643	0.311	1172	1	55.10	1.03	15.80	8.45	6.27	7.54	3.50	1.07	0.0	98.8	14
Grove 156	0.641	0.321	1162	1	55.30	1.14	15.20	9.02	6.01	7.45	3.54	1.15	0.0	98.8	14
Grove 155	0.654	0.335	1151	1	55.70	1.30	14.30	9.43	5.42	7.44	3.57	1.28	0.0	98.4	14
Grove 39	0.580	0.386	1144	1	59.20	1.10	15.30	7.52	4.25	6.15	3.96	1.55	0.0	99.0	14
Grove 38	0.561	0.392	1136	1	60.20	1.13	14.90	7.53	3.89	5.80	4.23	1.68	0.0	99.4	14
Tormey 6	0.713	0.279	1205	1	50.60	1.57	15.00	9.73	7.60	11.10	3.29	0.13	0.0	99.0	15
Tormey 12	0.714	0.282	1195	1	50.70	1.67	15.10	9.60	7.76	11.30	2.87	0.13	0.0	99.1	15
Tormey 11	0.678	0.309	1187	1	51.20	1.67	15.00	9.95	7.78	11.60	2.81	0.14	0.0	100.2	15
Tormey 14	0.681	0.305	1177	1	50.30	1.83	14.10	10.60	7.24	11.40	2.85	0.16	0.0	98.5	15
Tormey 7	0.731	0.246	1230	1	49.00	1.16	17.30	9.86	8.25	10.50	3.11	0.13	0.0	99.3	15
Tormey 5	0.732	0.256	1224	1	49.10	1.12	17.20	10.00	8.64	10.40	3.03	0.14	0.0	99.6	15
Tormey 1	0.724	0.274	1215	1	48.20	1.19	16.40	10.50	8.39	10.50	3.15	0.13	0.0	98.5	15
Juster A-1	0.705	0.279	1149	1	51.60	2.05	12.80	10.60	6.34	10.60	2.06	0.08	0.0	96.1	16
Juster A-18	0.661	0.301	1143	1	51.90	2.11	12.80	13.50	6.03	10.40	2.29	0.10	0.0	99.1	16
Juster A-6	0.648	0.316	1134	1	51.60	2.14	12.60	13.60	6.13	10.40	2.12	0.13	0.0	98.7	16
Juster A-8	0.659	0.308	1128	1	51.90	2.44	12.40	14.60	5.23	9.89	2.42	0.12	0.0	99.0	16
Juster A-10	0.640	0.323	1122	1	51.10	2.50	12.20	15.10	5.21	9.90	2.41	0.16	0.0	98.6	16
Juster A-22	0.690	0.287	1145	1	51.70	2.14	12.40	14.10	6.75	10.10	2.32	0.11	0.0	99.6	16
Juster A-23	0.666	0.299	1135	1	51.00	2.26	12.20	14.70	5.95	9.93	2.26	0.14	0.0	98.4	16
Juster A-25	0.651	0.312	1125	1	51.60	2.46	12.00	15.60	5.70	9.78	2.30	0.10	0.0	99.5	16

(1) Moore and Carmichael (1998), (2) Blatter and Carmichael (1998), (3) Blatter and Carmichael (2001), (4) Couch et al. (2003), (5) Costa et al. (2004), (6) Martel et al. (1999), (7) Luhr (1990), (8) Sisson and Grove (1993a), (9) Gardner et al. (1995), (10) Wagner et al. (1995), (11) Sisson and Grove (1993b), (12) Holtz et al. (2005), (13) Snyder et al. (1993), (14) Grove and Juster (1989), (15) Tormey et al. (1987), (16) Juster et al. (1989).