

Table 3 Total Dissolved H₂O, H₂O(m), and OH⁻ Concentrations in Fe-bearing Glasses Based on Infrared Absorbances

Sample	Thickness (cm)	Abs.3570 [□]	Abs.4500 [†]	Abs.5200 [‡]	Abs.1630 [§]	H ₂ O _{total} 3570	OH ^{-1#} 4500	H ₂ O(m) ^{□□} 5200	H ₂ O(m) ^{††} 1630	H ₂ O _{total} ^{‡‡} 4500+5200
run9c3s1	0.0091	-	0.0172	0.0388	1.640	-	1.69	2.82	3.00	4.51
run9c3s2	0.0091	-	0.0175	0.0350	1.580	-	1.72	2.54	2.90	4.26
run9c3s3	0.0091	-	0.0174	0.0338	1.570	-	1.71	2.45	2.88	4.16
run9c3s4	0.0091	-	0.0181	0.0350	1.520	-	1.78	2.54	2.79	4.32
run9c3s5	0.0091	-	0.0175	0.0329	1.620	-	1.72	2.39	2.97	4.11
run9c3s6	0.0091	-	0.0175	0.0337	1.550	-	1.72	2.44	2.84	4.16
run9ch3	0.0091	-	0.0168	0.0370	1.371	-	1.65	2.68	2.51	4.33
run9as1	0.0028	1.079	0.0050	0.0117	0.409	4.37	1.60	2.76	2.44	4.36
run9a-2s 1	0.0028	1.063	-	-	0.427	4.30	-	-	2.44	-
run9a-2/29#1	0.0028	1.054	0.0062	0.0112	0.404	4.27	1.98	2.64	2.41	4.62
run9a-2/29#2	0.0028	1.096	0.0064	0.0108	0.429	4.44	2.04	2.55	2.56	4.59
run9a-2/29#3	0.0028	1.041	0.0050	0.0111	0.406	4.21	1.60	2.62	2.42	4.22
run9a-2/29#4	0.0028	1.089	0.0060	0.0130	0.425	4.41	1.92	3.06	2.53	4.98
run9c-2	0.0064	2.493	0.0130	0.0290	1.074	4.42	1.82	2.99	2.80	4.81
run9c22/28/00	0.0064	2.493	0.0140	0.0250	1.064	4.42	1.96	2.58	2.77	4.54
run9c2/28#2	0.0064	2.494	0.0130	0.0270	1.066	4.42	1.77	2.68	2.68	4.45
run9c-3s1	0.0064	2.436	0.0120	0.0250	1.072	4.31	1.68	2.58	2.79	4.26
run9c-3s2	0.0064	2.402	0.0140	0.0270	1.081	4.25	1.96	2.78	2.82	4.74
run9c-3s3	0.0064	2.439	0.0140	0.0260	1.066	4.32	1.96	2.68	2.78	4.64
run9d	0.0037	1.561	-	-	0.582	4.78	-	-	2.62	-
run9d-2s1	0.0037	1.523	0.0080	0.0130	0.585	4.67	1.93	2.32	2.64	4.45
run9d-2s2	0.0037	1.519	0.0076	0.0132	0.579	4.65	1.84	2.36	2.61	4.20
run9d-2s3	0.0037	1.558	-	-	0.603	4.77	-	-	2.72	-
run9f	0.0040	1.589	0.0078	0.0182	0.617	4.50	1.74	3.00	2.57	4.74
run9f-2/29#2	0.0040	1.667	0.0100	0.0140	0.629	4.72	2.24	2.31	2.62	4.55
run9g	0.0039	-	0.0072	0.0153	0.542	4.01	1.65	2.59	2.32	4.24
run9g-2spa	0.0039	1.403	0.0080	0.0134	0.560	4.05	1.83	2.27	2.39	4.10
run9g-2s2	0.0039	1.393	0.0076	0.0142	0.551	4.13	1.74	2.40	2.36	4.14
run9g-2s3	0.0039	1.421	0.0074	0.0145	0.558	3.90	1.70	2.45	2.39	4.15
run9h	0.0042	1.542	0.0080	0.0160	0.599	4.16	1.70	2.52	2.38	4.22
run9h-2s1	0.0042	1.466	0.0082	0.0148	0.568	3.96	1.74	2.33	2.26	4.07
run9h-2s2	0.0042	1.458	0.0078	0.0139	0.563	3.94	1.66	2.18	2.24	3.84
run9h-2s3	0.0042	1.511	0.0080	0.0152	0.591	4.08	1.70	2.39	2.35	4.09
run9h-2/29#1	0.0042	1.605	0.0080	0.0200	0.620	4.33	1.70	3.14	2.46	4.84
run9h-2/29#2	0.0042	1.714	0.0080	0.0170	0.658	4.63	1.70	2.67	2.61	4.37
run9i	0.0052	1.902	0.0090	0.0210	0.737	4.15	1.55	2.67	2.36	4.22
run9i-2s1	0.0052	1.896	0.0100	0.0180	0.722	4.13	1.72	2.28	2.32	4.00
run9i-2s2	0.0052	1.857	0.0090	0.0187	0.717	4.05	1.55	2.37	2.30	3.92
run9i-2s3	0.0052	1.887	0.0097	0.0190	0.730	4.11	1.67	2.41	2.34	4.11
run10c1s1	0.0171	-	0.0400	0.0953	-	-	2.12	3.74	-	5.86
run10c1s2	0.0171	-	0.0420	0.0950	-	-	2.23	3.73	-	5.96
run10c2s1	0.0111	-	0.0281	0.0614	-	-	2.30	3.71	-	6.01
run10c2s2	0.0111	-	0.0263	0.0558	-	-	2.15	3.37	-	5.52
run10c3s1	0.0174	-	0.0422	0.1005	-	-	2.20	3.87	-	6.07
run10c3s2	0.0174	-	0.0424	0.1021	-	-	2.21	3.94	-	6.15
run10c3s3	0.0174	-	0.0400	0.0970	-	-	2.09	3.74	-	5.83
run10c4s1	0.0152	-	0.0320	0.0900	-	-	1.91	3.97	-	5.88
run10c4s2	0.0152	-	0.0300	0.0990	-	-	1.79	4.37	-	6.16
run10c4s31k	0.0152	-	0.0320	0.0850	-	-	1.91	3.75	-	5.66
run10c4s22k	0.0152	-	0.0300	0.0870	-	-	1.79	3.84	-	5.63
run10c4s42k	0.0152	-	0.0300	0.0860	-	-	1.79	3.80	-	5.59
run84c1s1	0.0159	-	0.0370	0.0430	1.633	-	2.10	1.80	1.73	3.90
run84c1s2	0.0159	-	0.0350	0.0380	1.576	-	1.98	1.59	1.67	3.57
run84c1s3	0.0159	-	0.0350	0.0400	1.585	-	1.98	1.67	1.68	3.65
run84c1s4	0.0159	-	0.0360	0.0370	1.574	-	2.04	1.55	1.66	3.59
run84c1s5	0.0159	-	0.0380	0.0440	-	-	2.15	1.84	-	3.99
run84c1s6	0.0159	-	0.0390	0.0430	1.653	-	2.16	1.73	1.68	4.01
run84c1s7	0.0159	-	0.0360	0.0440	-	-	2.04	1.84	-	3.88
run84-2c1s1	0.0124	-	0.0300	0.0310	1.248	-	2.18	1.66	1.69	3.84
run84-2c1s2	0.0124	-	0.0300	0.0300	1.254	-	2.18	1.61	1.70	3.79
run100c1s1	0.0189	0.311	-	-	-	-	0.18	-	-	0.18
run100c2s1	0.0189	0.419	0.0050	-	-	0.24	0.23	-	-	0.23
run100s1320	0.0189	0.406	-	-	-	0.23	-	-	-	-
run100s2320	0.0189	0.423	0.0050	-	-	0.24	0.23	-	-	0.23
run100s3320	0.0189	0.427	0.0040	-	-	0.25	0.18	-	-	0.18
run100s4320	0.0189	0.399	-	-	-	0.23	-	-	-	-
r100c1s3116	0.0108	0.265	0.0024	-	-	0.27	0.19	-	-	0.19
run101c1s1	0.0127	1.939	0.0170	0.0140	0.298	1.68	1.16	0.70	0.38	1.86
run101c1s2	0.0127	1.981	0.0150	0.0110	0.302	1.71	1.02	0.55	0.38	1.57
run101c1s3	0.0127	2.023	0.0160	0.0120	0.321	1.75	1.09	0.60	0.41	1.69
run101c1s4	0.0127	2.013	0.0150	0.0090	0.317	1.74	1.02	0.45	0.40	1.47
run101c1s5	0.0127	1.961	0.0160	0.0100	0.295	1.70	1.09	0.50	0.38	1.59
run101c1s6	0.0127	2.029	0.0160	0.0100	0.317	1.75	1.09	0.50	0.40	1.59
r101-2c1s1	0.0075	1.211	0.0090	0.0050	0.191	1.77	1.04	0.43	0.41	1.47
r101-2c1s3	0.0075	1.261	0.0098	0.0040	0.188	1.84	1.13	0.34	0.40	1.47
r101-2c2s1	0.0057	1.083	0.0097	0.0031	0.171	2.09	1.47	0.35	0.48	1.82

r101-2c2s3	0.0057	1.028	0.0087	0.0028	0.150	1.98	1.32	0.31	0.42	1.63
r101-2c3s1	0.0101	1.570	0.0112	0.0095	0.258	1.71	0.96	0.60	0.41	1.56
r101-2c3s2	0.0101	1.590	0.0139	0.0084	0.272	1.73	1.19	0.53	0.44	1.72
r101-2c4s1	0.0076	1.201	0.0089	0.0063	0.174	1.74	1.01	0.53	0.37	1.54

Notes: □ Background corrected absorbance at $3570 \pm 20 \text{ cm}^{-1}$; † Background corrected absorbance at $4500 \pm 10 \text{ cm}^{-1}$

‡ Background corrected absorbance at $5200 \pm 10 \text{ cm}^{-1}$; § Background corrected absorbance at $1630 \pm 10 \text{ cm}^{-1}$;

|| Concentration (weight %) of total dissolved H_2O based on 3570 cm^{-1} absorbance and $\square_{3570} = 62.32 \text{ L/mol cm}$;

Concentration (weight %) of dissolved H_2O as OH^{-1} based on 4500 cm^{-1} absorbance and $\square_{4500} = 0.79 \text{ l/mol cm}$;

□□ Concentration (weight %) of dissolved H_2O as molecular H_2O based on 5200 cm^{-1} absorbance and $\square_{5200} = 1.07 \text{ L/mol cm}$;

†† Concentration (weight %) of dissolved H_2O as molecular H_2O based on 1630 cm^{-1} absorbance and $\square_{1630} = 42.34 \text{ L/mol cm}$;

‡‡ Concentration (weight %) of total dissolved H_2O based on summation of OH^{-1} (#) and molecular H_2O (□□)