

1 Preventing Glass Alteration in Museum Objects using ALD Deposited Amorphous Alumina
2 Coatings
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6 **Supplemental Information**

7 Table 1: List of elements analyzed with SEM-EDS and the primary calibrants used in quantification.

Target Element	Standard Used
Si	Obsidian
Ti	TiO ₂
Al	Al ₂ O ₃
Fe	Hematite (Fe ₂ O ₃)
Mg	Periclase (MgO)
Ca	Wollastonite (CaSiO ₃)
Na	Albite (NaAlSi ₃ O ₈)
K	Orthoclase (KAlSi ₃ O ₈)
S	Celestite (SrSO ₄)
Sn	Cassiterite SnO ₂

8 *All other elements were analyzed using standardless quantification
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10 Table 1: Average measured and accepted compositional values in kg/kg x 10² and calculated
 11 percent deviations from the expected values for both Corning A (n = 11) and Corning B (n = 9)
 12 glass secondary calibrants.

Oxide	Corning A Accepted (kg/kg x 10 ²)	Corning A Measured (kg/kg x 10 ²) n=11	Deviation from expected (%)	Corning B Accepted (kg/kg x 10 ²)	Corning B Measured (kg/kg x 10 ²) n=9	Deviation from expected (%)
SiO₂	66.56	67.54	1.5	61.55	62.10	0.9
TiO₂	0.08	1.08	1250	0.09	0.28	211.1
Al₂O₃	1.00	1.16	16	4.36	4.07	6.6
Fe₂O₃	1.09	1.10	0.9	0.34	0.39	14.7
MnO	1.00	1.16	16	0.25	0.32	28
MgO	2.66	2.48	6.7	1.03	1.03	0
CaO	5.03	4.71	6.3	8.56	8.24	3.7
BaO	0.56	0.70	25	0.12	0.10	16.7
SrO	0.10	n/a	n/a	0.02	n/a	n/a
Na₂O₃	14.30	13.66	4.5	17.00	16.33	3.9
K₂O	2.87	2.85	0.7	1.00	1.05	5
P₂O₅	0.13	0.07	46.1	0.82	0.65	20.7
SO₃	0.10	0.20	100	0.50	0.68	36
Cl	0.10	0.10	0	0.20	0.14	30
Sb₂O₃	1.75	2.16	23.4	0.46	1.30	182.6
PbO	0.12	0.11	8.3	0.61	n/a	n/a
CuO	1.17	0.93	20.5	2.66	2.03	23.7
SnO₂	0.19	0.14	26.3	0.04	0.08	100
ZnO	0.04	0.10	150	0.19	0.16	15.8
CoO	0.17	0.19	11.7	0.05	0.05	0
Total	99.73	99.84		99.84	98.67	

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14 Table 2: Standards used in solution-ICP-MS sample preparation. Initial concentration, dilution, and
 15 elements present in standard are listed.

Standard	Internal Standard	Calibration Standard 1	Calibration Standard 2
Concentration	100 µg/mL	10 mg/L	100 mg/L
Dilution used	0.25 g/50 mL	Initial: 0.5 g/50 mL	Initial 0.05 g/50 mL
Elemental Contents	Bi, In, Sc, Tb, Y	Al, As, Ba, Be, Bi, B, Cd, Ca, Ce, Cs, Cr, Co, Cu, Dy, Er, Eu, Fe, Gd, Ga, Ho, In, La, Li, Lu, Mg, Mn, Na, Nd, Ni, P, Pb, K, Pr, Re, Rb, Sc, Se, Sm, Sr, Tb, Tl, Th, Tm, U, V, Y, Yb, Zn	Ag, Ge, Hf, Mo, Nb, Sb, Si, Sn, Ta, Ti, W, Zr

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