

Supplemental Materials Section

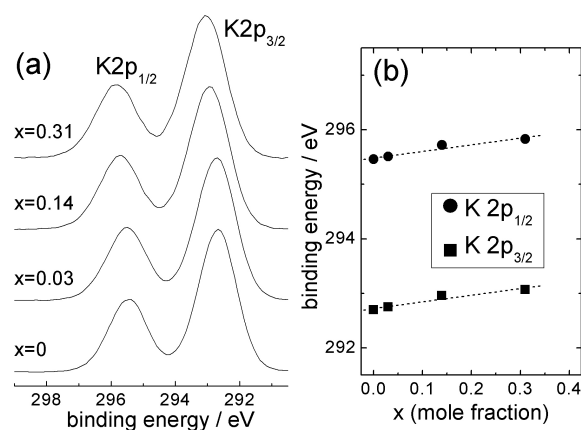


Figure S1: (a) K-2p core-level photoelectron spectra of selected glass compositions in the K-Al metaphosphate system as a function of the $\text{Al(PO}_3)_3$ molar fraction x . (b) Average binding energies as a function of x . Lines are guides to the eye.

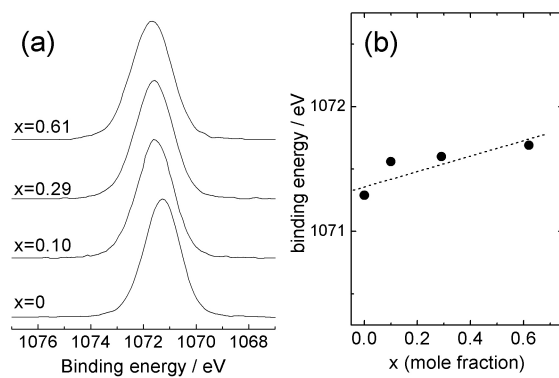


Figure S-2: (a) Na-1s core-level photoelectron spectra of selected glass compositions in the Na-Al metaphosphate system as a function of the $\text{Al}(\text{PO}_3)_3$ molar fraction x . (b) Average binding energies as a function of x . The line is a guide to the eye.

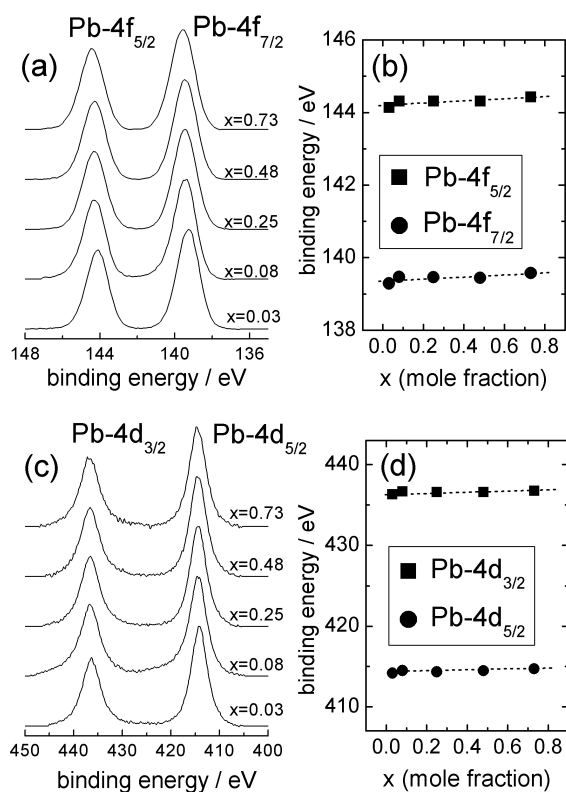


Figure S-3: Pb-4f (a) and Pb4d (c) core-level photoelectron spectra of selected glass compositions in the Pb-Al metaphosphate system as a function of the $\text{Al}(\text{PO}_3)_3$ molar fraction x . Average binding energies as a function of x for Pb-4f (b) and Pb4d (d). Lines are guides to the eye.

Table S-4: Al-2p and K-2p binding energies and full widths at half height (± 0.2 eV) of $(\text{KPO}_3)_{1-x}(\text{Al}(\text{PO}_3)_3)_x$ glasses.

x	BE(eV) Al-2s	FWHM(eV) Al-2s	BE (eV) K-2p _{3/2}	BE(eV) K-2p _{1/2}	FWHM(eV) K-2p _{3/2}	FWHM(eV) K-2p _{1/2}
0	--	--	292.7	295.5	1.4	1.5
0.07	75.2	1.5	292.8	295.5	1.5	1.5
0.14	75.3	1.4	293.0	295.7	1.5	1.6
0.31	75.3	1.4	293.1	295.8	1.5	1.6
1	75.8	1.6	--	--	--	--

Table S-5: Al-2p and Na-1s binding energies and full widths at half height (± 0.2 eV) of $(\text{NaPO}_3)_{1-x}(\text{Al}(\text{PO}_3)_3)_x$ glasses.

x	BE(eV) Al-2s	FWHM(eV) Al-2s	BE(eV) Na-1s	FWHM(eV) Na-1s
0	--	--	1071.3	1.6
0.10	75.3	1.4	1071.6	1.7
0.29	75.4	1.4	1071.6	1.7
0.61	75.6	1.5	1071.7	1.8
1	75.8	1.6	-	-

Table S-6: Al-2p, Pb-4f, and Pb-4d binding energies and full widths at half height (± 0.2 eV) of $(\text{Pb}(\text{PO}_3))_{1-x}(\text{Al}(\text{PO}_3)_3)_x$ glasses.

x	BE(eV) Al-2s	FWHM(eV) Al-2s	BE (eV) Pb-4f _{7/2}	BE(eV) Pb-4f _{5/2}	FWHM(eV) Pb-4f _{7/2}	FWHM(eV) Pb-4f _{5/2}	BE (eV) Pb-4d _{5/2}	BE(eV) Pb-4d _{3/2}	FWHM(eV) Pb-4d _{5/2}	FWHM(eV) Pb-4d _{3/2}
0.03	--	--	139.3	144.1	1.4	1.4	414.2	436.3	4.0	4.8
0.08	--	--	139.5	144.3	1.4	1.5	414.5	436.7	4.3	5.0
0.25	75.5	1.6	139.5	144.3	1.5	1.5	414.3	436.6	4.0	4.7
0.48	75.5	1.5	139.5	144.3	1.5	1.5	414.5	436.6	4.0	4.7
0.73	75.6	1.6	139.6	144.4	1.5	1.5	414.7	436.8	4.7	3.9
1	75.8	1.6	--	--	--	--	--	--	--	--