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Synthesis of dry $AgPO_3$ glass and characterization by Raman, IR and m-DSC D. NOVITA, P. BOOLCHAND, Univ. Cincinnati — Glass transition temperature of titled glass apparently vary over a wide range, $163\,^\circ$C$< T_g < 254\,^\circ$C depending on the humidity of the ambient environment in which precursors are handled[1]. We have examined a set of 4 samples (1($181\,^\circ$C),2($203\,^\circ$C), 3($242.7\,^\circ$C), 4($254\,^\circ$C) with different T_gs indicated in parenthesis, in m-DSC, Raman and IR experiments to elucidate the role of bonded water. Our results show that the glass transition endotherm of sample 4 (dry) is characteristic of a stressed-rigid glass, while that of sample 1 (wet) of a flexible glass. Although Raman scattering of samples 1 and 4 look superficially similar, they are different in details; the Boson peak in sample 4 has a stronger intensity than in sample 1. IR reflectance signal strength in the mid-IR range is weaker for sample 4 than for sample 1, and furthermore differs in details. These results show that presence of water disrupts the P-O-P chain network by replacing bridging O with terminal OH^- ends. And once water is bonded, it is difficult to remove it completely. These results will be compared to previous reports in the field. [1] D.I.Novita and P.Boolchand Phys. Rev. B (in press) * Supported by NSF grant DMR 04-56472

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