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Topological phases in $(Na_2O)_x(P_2O_5)_{100-x}$ glasses. CHANDI MOHANTY, RALPH CHBEIR, ANDREW CZAJA, PING CHEN, PUNIT BOOLCHAND, University of Cincinnati — We have synthesized titled glasses in the 0 <x <0.50 range of soda paying special attention to their dryness. Pure P_2O_5 glass was synthesized by flash evaporation of bulk powder in a quartz tube as it was pumped in several attempts, and the variation of T_g and enthalpy of relaxation (ΔH_{nr}) measured for each attempt. These data show that as the glass got drier, T_g increased to 431C and ΔH_{nr} became miniscule. At higher soda content (x >20%), T_g(x) increased steadily, but with appearance of a local maximum near x = 37.5%. On the other hand ΔH_{nr} term, revealed a Trapezoidal-like minimum in the 32.5 % <x <42.5% range, suggestive of a reversibility window or the isostatically rigid Intermediate Phase, with glasses at x >42.5% in the flexible phase while those in the 20% <x <32.5% range in the stressed rigid phase. We have also obtained Raman scattering, IR reflectance and fragility index measurements on the present glasses, and these will discussed with recent[1] results in the field.

1. D.L. Sidebottom J. Chem. Phys. **140**, 154501(2014).

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