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**Frustrated Ternary Insulating Mixed Magnetic Co/Mn/Fe Dichloride Dihydrate** G.C. DEFOTIS, C.D. WALLO, R.L. SMITH, D.B. BODKIN, G.L. MIRIBALIO, T.R. LEFTWICH, M.G. KIM, Z.D. REED, College of William and Mary, Williamsburg, VA 23187-8795 — Mixed ternary insulating Co/Mn/Fe dichloride dihydrate has been examined by dc susceptibility and magnetization measurements over a broad range of compositions. The three components are isomorphous antiferromagnets with different ordered spin arrangements. Orthogonal spin anisotropies occur between the Fe and Co, and the Fe and Mn, components. Competing (sign) exchange interactions occur between the Fe and Mn, and the Co and Mn, components. The consequences of these competitions has been determined in previous work on the three possible binary mixtures. Examined here, for the ternary mixture, are high temperature paramagnetic phase properties, and low temperature properties including magnetic ordering and nonequilibrium behavior vs composition. The latter includes field cooled vs zero-field cooled susceptibilities, and thermoremanent magnetization as a function of time and temperature. A T-H irreversibility line is determined for one spin-glass-like composition, and temperature-time scaling of the thermoremanent magnetization confirmed for several compositions. A magnetic phase diagram (T vs composition) is also determined, involving two independent composition variables. *Supported by NSF-Solid State Chemistry-Grant No. DMR-0085662.

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