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Copper Phenazine Dichloride, a S=1/2 Heisenberg Antiferromagnetic Chain R. T. SCHNEIDER, C. P. LANDEE, M. M. TURNBULL, Clark University, Worcester, MA 01610, F. F. AWWADI, Department of Chemistry, Washington State University, Pullman, WA 99164 — Low-dimensional antiferromagnets provide good testing grounds for predictions of cooperative quantum behavior. S=1/2 copper ions bridged by organic ligands such as pyrazine form antiferromagnetic chains with exchange strengths weak enough to be overcome by available magnetic fields. [1] Phenazine (Phz) ($C_{12}H_8N_2$) is similar to pyrazine in its ability to form magnetic chains but has a different electronic structure resulting in different exchange strengths. We report on the synthesis, crystal structure, magnetic susceptibility, and high field magnetization of $Cu(Phz)Cl_2$. Its behavior can be described as that of a Heisenberg antiferromagnetic chain with an exchange constant $|J|/k_B$ = 33 K. The exchange strengths of chains with pyrazine, quinoxaline, and phenazine will be compared. [1] M. B. Stone et al, *Physical Review Letters* **91**, 037205 (2003).

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