

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Deuterated Mn and Ni Dibromide Dihydrate and Contrast with Normal Water Systems¹ K.T. TROWELL, K.C. HAVAS, M.J. VAN DONGEN, C.H. KOMATSU, D.G. CHAN, Z.D. REED, G.C. DEFOTIS, College of William and Mary — First row transition metal hydrated bromide compounds are much less studied magnetically than chlorides, and for each of the common hydration states 2, 4 or 6 waters. Examination of rarer monohydrate chlorides was initiated only more recently. Quite intriguing similarities and differences in the magnetism, with respect to that of the most closely related dihydrates especially, occur. It is of interest to extend measurements to bromide systems, especially mono- and dihydrate forms. And given the role, structural and magnetic, that hydrogen bonding can play, deuteration effects are also worth exploring (and little studied in general). Magnetic measurements on the new deuterated title systems are presented. For the deuterated Mn compound the susceptibility is of similar general appearance to that of the normal water system, but with a maximum at 2.1 K, only one-third the 6.3 K of the latter; the maximum is much larger in the deuterated system. For the deuterated Ni compound a maximum appears about 10% lower than the 6.0 K location in the normal water system, and is of moderately larger size; it is however substantially broader. Comparisons with deuterated vs normal water behaviors in related materials, where differences are often far less striking, will be made.

¹Supported by a grant from the Solid State Chemistry Program of the DMR-NSF

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Date submitted: 11 Nov 2011

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