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Magnetic properties of RT_2Al_{20} (R = Gd, Eu and Yb, T = Ti, V and Cr) J. FREDERICK, Ames Laboratory, USDOE, SHUANG JIA, S.L. BUD'KO, P.C. CANFIELD, Ames Laboratory, USDOE and Department of Physics and Astronomy, Iowa State University — Isostructural RT_2Al_{20} series of compounds contain less than 5 at. % of rare earth ions. Thermodynamic and transport measurements were performed on solution-grown, single crystals: both R = Gd and Eu series manifest clear local moment behavior with magnetic ordering below 10 K. These low transition temperatures are consistent with the dilute nature of the rare earth ions. Unlike the RT_2Zn_{20} series, we have not found enhanced magnetic order or near-Stoner like behavior for any member of the RT_2Al_{20} family of compounds. The R = Yb members, however, all manifest weak Pauli paramagnetism, consistent with a divalent state for the Yb ions.

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