9.7 cm

Magnetic studies of the $S = 1$ Heisenberg chain $[\mathrm{Ni(Pr}^i\mathrm{xa)}_2\mathrm{(pyr)}]_n$

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The magnetic properties of the polymeric compound $[\mathrm{Ni(Pr}^i\mathrm{xa)}_2\mathrm{(pyr)}]_n$, a linear chain material, have been experimentally studied to identify the magnetic subsystem based on the Ni(II) ions with octahedral geometry. The magnetic susceptibility has been studied in the temperature range from 2K to 300 K. Significant deviations of the effective magnetic moment from its maximum value of $2.95\mu_B$ appear below 50 K and can be ascribed to the combined effect of single-ion anisotropy and magnetic correlations. The analysis of a round susceptibility maximum observed at 3.5 K, together with the behaviour of the isothermal magnetization studied up to 5 T, suggests this material can be treated as an $S = 1$ antiferromagnetic Heisenberg chain with anisotropy D. The type of the anisotropy and consequently the position of the system in the $(\lambda - D)$ phase diagram involving exchange anisotropy λ will be discussed.

13.4 cm

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