

Magnetic properties of the molecular-based magnet $\text{Na}[\text{FeO}_6(\text{C}_{10}\text{H}_6\text{N})_3]$

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The static and dynamic aspects of magnetic behaviour of the complex $\text{Na}[\text{FeO}_6(\text{C}_{10}\text{H}_6\text{N})_3]$ as a function of temperature, frequency and magnetic field have been analyzed. The *ac* susceptibility and *dc* magnetization were measured at temperatures of 1.5-200 K in magnetic field up to 90 kOe and at frequencies of 95-2000 Hz. The experimental data indicate an absence of magnetic long range order in this complex. The magnetization does not reach a saturation in field of 90 kOe at 1.5 K. At low temperatures the following peculiarities of magnetic properties of complex were found: cusp-like anomalies in the *ac* susceptibility and *ZFC* magnetization at $T_{cusp} = 17$ K; frequency dependence of the T_{cusp} temperature; remanence and time-dependent relaxation of *ZFC* magnetization. Comparison of characteristic peculiarities of magnetic behavior of the spin-glasses and superparamagnets was performed. Although superparamagnetic behavior should not be completely ruled out, the analysis of results strongly suggests that the spin-glass-like behavior is a more consistent explanation.