Magnetic properties of polynuclear cobalt cluster with N-(2-hydroxybenzyl) ethanolamine

Substance

Hexanuclear cobalt($Co_3^{III}Co_3^{II}$) complex with N-(2-hydroxybenzyl)ethanolamine; $[Co_6(L)_6(OH)(H_2O)_3]Cl_2.10H_2O$

Gross Formula

$C_{54}H_{93}Cl_2Co_6N_6O_{26}$

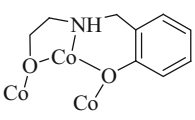
Properties

Product of molar magnetic susceptibility with temperature

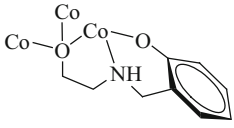
Structure

$[Co_6(L)_6(OH)(H_2O)_3]Cl_2.10H_2O$;

(a)

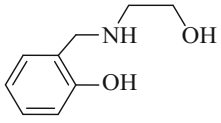


(b)



bridging modes of ligand

H_2L = N-(2-hydroxybenzyl) ethanolamine



R. T. Pardasani, P. Pardasani, *Magnetic Properties of Paramagnetic Compounds, Magnetic Susceptibility Data, Volume 5*, https://doi.org/10.1007/978-3-662-65098-1_268

Data

T [K]	χ_g [10^{-6} emu/g]	$\chi_M T$ [cm^3 K mol^{-1}]	p_m or μ_{eff} [μ_B]	Θ_P [K]	Method	Remarks
300 5.0	– –	8.47 3.02	–	–	SQUID	Hexanuclear $Co_3^{III}Co_3^{II}$ complex with a face-sharing defective cubane-like units; the whole entity adopts a crown shape

T: Temperature
χ_g: Specific susceptibility
χ_M: Molar susceptibility
p_m, μ_{eff}: Effective magnetic moment per molecule
Θ_P: Paramagnetic Curie constant (Weiss constant)

Additional Remark

(i) Antiferromagnetic coupling between Co^{II}_3 moiety is observed

Reference

Y. Xie, Q. Liu, H. Jiang, J. Ni, Eur. J. Inorg. Chem. 4010 (2003)