

---

# Magnetic properties of cobalt(II) nitrate complex with 14-membered hexaazamacrocyclic ligand

---

## Substance

Cobalt(II) nitrate complex with 14-membered hexaazamacrocyclic ligand;  
[Co(L)(NO<sub>3</sub>)<sub>2</sub>]

---

## Gross Formula

C<sub>28</sub>H<sub>32</sub>CoN<sub>8</sub>O<sub>6</sub>

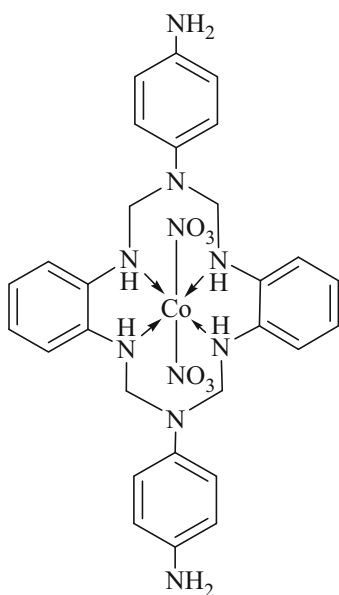
---

## Properties

Molar magnetic moment

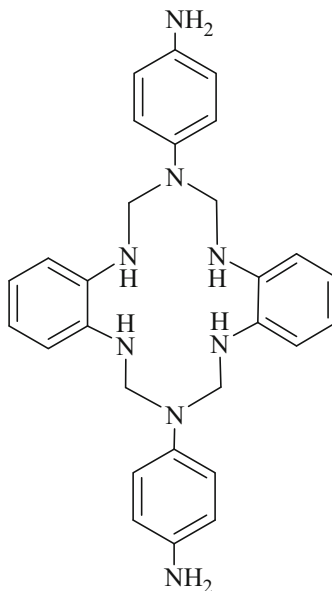
## Structure

[Co(L)(NO<sub>3</sub>)<sub>2</sub>];



L = 14-membered pendant arm

hexaazamacrocyclic ligand obtained by the condensation of 1,2-phenylenediamine, 1,4-phenylenediamine and formaldehyde



## Data

<i>T</i> [K]	$\chi_g$ [10 <sup>-6</sup> emu/g]	$\chi_M$ [10 <sup>-6</sup> emu/mol]	$p_m$ or $\mu_{\text{eff}}$ [ $\mu_B$ ]	$\Theta_P$ [K]	Method	Remarks
298	–	–	4.7	–	Faraday	High-spin, Co(II) with distorted octahedral geometry

*T*: Temperature

$\chi_g$ : Specific susceptibility

$\chi_M$ : Molar susceptibility

$p_m, \mu_{\text{eff}}$ : Effective magnetic moment per molecule

$\Theta_P$ : Paramagnetic Curie constant (Weiss constant)

---

## Symbols and Abbreviations

Short form	Full form
$T$	temperature
$\chi_g$	magnetic susceptibility per gram (specific susceptibility)
$\chi_M$	magnetic susceptibility per mole (molar susceptibility)
$p_m$	effective magnetic moment per molecule
$\mu_{eff}$	effective magnetic moment
$\Theta_P$	paramagnetic Curie constant (Weiss constant)
Faraday	Faraday method

---

## Reference

- F. Firdaus, K. Fatma, M. Azam, S.N. Khan, A.U. Khan, M. Shakir, *Transit. Met. Chem.* **33**, 467 (2008)