

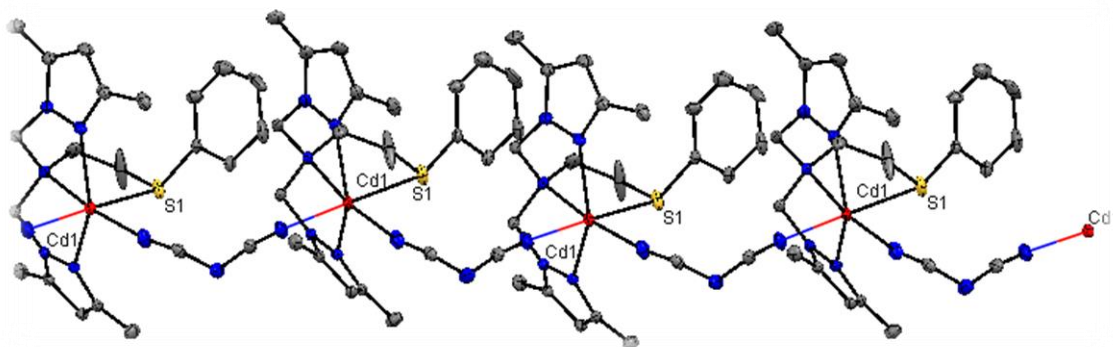
# Synthesis And Structure of Coordination Polymer $[\text{Cd}(\mu\text{-1,5dca})]_n [\text{ClO}_4]_n$

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## ABSTRACT:

Design and synthesis of coordination polymer have become an important area of research recently because of their useful applications in the field of microporous materials, heterogenous catalysis, molecular sensor, molecular-based magnet etc. The aim of this work is to synthesis and characterization of structure of polynuclearcadmium(II) complex using dicyanamide ion  $[\text{N}(\text{CN})_2^-]$  as bridging ligand and tetradentate  $\text{N}_3\text{S}$ -coordinate ligand (L) as blocking ligand. The title compound  $[\text{CdL}(\mu\text{-1,5dca})]_n(\text{ClO}_4)_n$  was synthesized by reaction of  $\text{Cd}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ , tetradentateligand L and bridging ligand dca in methanol at room temperature. Single crystal diffraction study of the complex shows each cadmium(II) center has octahedral geometry, four coordination sites are bonded by tetradentate ligand [three nitrogen and one Sulphur atoms] and two sites by two nitrogen atoms from two bridging dicyanamide ligands ( $\mu_{1,5}$ -dca bridging) and form polymeric chain. Two cadmium centers are bonded by two dicyanamide ligands zig-zag manner. The crystal of the polynuclear complex is



In conclusion, coordination polymer of octahedral cadmium(II) complex has been synthesized and characterized.