

A novel polymeric Cd[SSe₂N₂] central core five-coordinate complex: Synthesis, X-ray structure and ¹¹³Cd, ⁷⁷Se CP MAS NMR characterization of catena(bis(μ 2-selenocyanato-N,Se)-(N,N'-dimethylimidazolidine- 2-thione-S)-cadmium(II)).

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Abstract

Cadmium(II) selenocyanate reacts with N,N'-dimethylimidazolidine-2-thione (Me₂lmt) at a 1:1 ratio forming a polymeric [(Me₂lmt)Cd(SeCN)₂]_∞ complex. The metal ion is bonded to one imidazolidine thione through the sulfur atom, two selenocyanate ions through their selenium atoms and two other selenocyanates through their nitrogen atoms. The metal complex coordination sphere Cd[SSe₂N₂] adopts a distorted trigonal bipyramidal geometry with the chalcogen atoms occupying the equatorial positions and the nitrogen atoms in the axial positions. The ⁷⁷Se CP MAS NMR data are consistent with two different selenium sites and the shielding tensor parameters of ¹¹³Cd point to a near axial symmetry for the cadmium environment.