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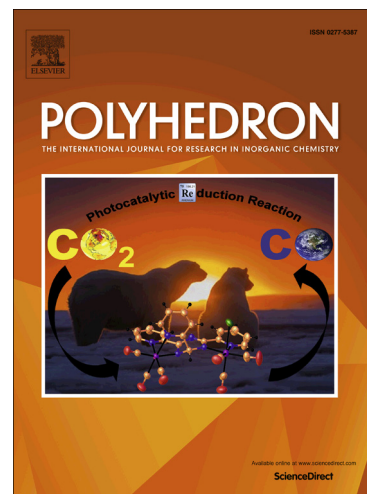
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# Neodymium coordination polymers with propionate, succinate and mixed succinate-oxalate ligands: synthesis, structures and spectroscopic characterization

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**Abstract:** Three neodymium (Nd) coordination polymers with propionate, succinate and mixed succinate-oxalate ligands have been synthesized and structurally characterized.  $\text{Nd}_2(\text{C}_3\text{H}_5\text{O}_2)_6(\text{H}_2\text{O})_3 \cdot 3\text{H}_2\text{O}$  (**1**) has a 1D polymeric structure built with both nine-fold and ten-fold coordinated neodymium polyhedra linked through  $\mu_2$ -bridging propionate ligands.  $\text{Nd}_2(\text{C}_4\text{H}_4\text{O}_4)_3(\text{H}_2\text{O})_2$  (**2**) has a 3D polymeric structure constructed with two distinct nine-fold coordinated neodymium polyhedra linked through three types of succinate ligands, two in  $\mu_4$ - and one in  $\mu_3$ - coordination modes.  $\text{Nd}_2(\text{C}_4\text{H}_4\text{O}_4)_2(\text{C}_2\text{O}_4)(\text{H}_2\text{O})_4 \cdot 3\text{H}_2\text{O}$  (**3**) is built with two types of ten-fold coordinated neodymium polyhedra linked through  $\mu_4$ - succinate ligands into 2D undulating layers which are further connected through  $\mu_2$ - oxalate ligands forming a 3D network with channels. Their vibrational modes and thermal stabilities have been further investigated.

**Key words:** Neodymium, Coordination Polymer, Propionate, Succinate, Oxalate

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