

Coordination compounds of lanthanides with polydentate phosphine oxide ligands

Polymeric coordination compounds are now intensively studied because of their potential application in many areas such as hydrogen and methane storage, gas separation, catalysis, luminescence, drug storage and transport etc. Coordination chemistry of lanthanides slightly differs from that of the d-block elements owing to their larger ionic radii and lower electronegativity. This allows lanthanides to create compounds with higher coordination numbers when they react with ligands containing hard donor atoms.

Our research aims at synthesis of coordination compounds of lanthanides with ligands that have two $\text{Ph}_2\text{P}(\text{O})^-$ groups or one $\text{Ph}_2\text{P}(\text{O})^-$ and one COOH group. These compounds adopt various structures from simple molecular complexes to three-dimensional coordination polymers.