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Intercalation Compounds of the γ -Zirconium Phosphate: X-ray Characterization. C. Ferragina,¹ R. Di Rocco,¹ and L. Petrilli², National Council of Researches-IMIP¹, ISM², via Salaria Km. 29.300, 00016 Monterotondo (Rome) Italy.

The ion-exchanger γ -zirconium phosphate exchanges transition metal ions and intercalates organic molecules which acting as ligands give rise to coordination compounds formed *in situ*. These obtained materials can be used as catalysts in heterogeneous catalysis. Here we report the X-ray characterization of the γ -ZrP intercalation amines compounds and of their Cd complexes materials. The γ -ZrPL (L=2,2'-bipyridyl; 2,4'-bipyridyl; 4,4'-bipyridyl) and γ -ZrPL₁ (L₁=1,10 phenanthroline; 2,9-dimethyl-1,10-phenanthroline) show an increased interlayer distance d up to $\sim 5\text{\AA}$ with respect the precursor γ -ZrP. At 250°C only γ -ZrP2,2'-bipy, γ -ZrPphen and γ -ZrPdmp show a decreased d . From 500°C up to 900°C an amorphization is evident. At 1100°C the pyrophosphate phase is present in all the γ -ZrPL and γ -ZrPL₁ materials. When γ -ZrPL and γ -ZrPL₁ are exchanged with the Cd²⁺ to give γ -ZrPLCd and γ -ZrPL₁Cd materials, only in the case of γ -ZrP2,2'-bipyCd an increased d and some variation at high angles, with respect its precursor, are evident. At 250°C γ -ZrPphenCd shows a double reflection for d . At 900°C the pyrophosphate and Cd-zirconium double phosphate phases are present. The Cd presence results in a decrease of the temperature for the pyrophosphate formation of 200°C.