

## Synthesis of Novel Layered Cobalt (II) Phosphate

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A new layer-structured  $\text{Co}(\text{NH}_3)(\text{HPO}_4) \cdot 1/2\text{H}_2\text{O}$  has been prepared hydrothermally in the presence of  $\text{Co}(\text{sen})\text{Cl}_3$ ,  $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ , phosphoric acid, and ammonium hydroxide. The structure of this material has been characterized by single-crystal X-ray diffraction analysis. Cobalt metal ion leading to layer-structured framework consists of polyoctahedra  $\text{CoO}_5\text{N}$  and one ammonia molecule is coordinated on the axial site of cobalt (II) as organic ligand. The distance of interlayer is  $5.17\text{\AA}$  and it is occupied with only water molecule interacting with  $-\text{OH}$  group of phosphorous by hydrogen bonding.