

# Crystal Structure Elucidation of Anhydrous $\text{Rb}_2[\text{Pt}(\text{CN})_4]$ from X-Ray Powder Diffraction Data

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The title compound has been synthesized by metathesis of  $\text{Ba}[\text{Pt}(\text{CN})_4] \cdot 4 \text{H}_2\text{O}$  with  $\text{Rb}_2\text{SO}_4$ , in aqueous solution. Its crystal structure was solved from X-ray powder diffraction data using the simulated-annealing approach, and refined by Rietveld's method. The compound crystallizes in space group *Imma*,  $a = 11.1432(2)$ ,  $b = 7.4382(1)$ ,  $c = 11.1896(2)$  Å,  $V = 927.45(3)$  Å<sup>3</sup>,  $Z = 4$ ,  $R_p = 0.0402$ ,  $R_w = 0.0247$  ( $N_{hkl} = 173$ ). Square-planar tetracyanoplatinate groups stack in an unprecedented eclipsed conformation, forming one-dimensional linear chains of Pt-atoms with Pt–Pt separations of 3.719 Å.  $\text{Rb}_2[\text{Pt}(\text{CN})_4]$  was characterized by differential thermal analysis, thermogravimetry and infrared spectroscopy.

*Key words:* Cyanoplatinate, Rubidium, IR Spectroscopy, X-Ray Powder Diffraction