

# A niobium phosphate bronze closely related to the tungsten phosphate bronzes family: $\text{Na}_4\text{Nb}_8\text{P}_6\text{O}_{35}$

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## Description

A new niobium phosphate bronze  $\text{Na}_4\text{Nb}_8\text{P}_6\text{O}_{35}$  has been isolated. Its structure was solved by single crystal x-ray diffraction. It crystallizes in the orthorhombic system with the space group  $Pbam$ . The cell parameters are  $a = 8.4992(7)\text{\AA}$ ,  $b = 15.3390(8)\text{\AA}$ , and  $c = 10.5913(9)\text{\AA}$ . The framework  $(\text{Nb}_8\text{P}_6\text{O}_{35})_{\infty}$  consists of  $(\text{Nb}_3\text{P}_2\text{O}_{17})_{\infty}$  layers, sharing the corners of their octahedra and forming  $(\text{Nb}_6\text{P}_4\text{O}_{31})_{\infty}$  bilayers. The latter bilayers are linked along  $\{c\}$  through  $(\text{Nb}_2\text{P}_2\text{O}_{14})$  units, built up themselves of two edge-sharing  $\text{NbO}_6$  octahedra connected to two  $\text{PO}_4$  tetrahedra. The relationships with other niobium phosphate bronzes is also discussed as well as the great distortion of the different polyhedra of the structure.