A novel niobium phosphate bronze with a tunnel structure, K3Nb6P4O26, member n=∞ of the series (K3Nb6P4O26) n· KNb2PO8

Authors

A Benabbas, MM Borel, A Grandin, A Leclaire, B Raveau

Description

A new niobium phosphate bronze with a tunnel structure $K_3Nb_6P_4O_{26}$ has been synthesized and its structure has been determined from a single crystal by X-ray diffraction. It crystallizes in the space group *Pnma* with *a* = *14.7484(9)*Å, *b* = *31.582(2)*Å, *c* = *9.3859(6)*Å. Its structure consists of $Nb_3P_2O_{13\infty}$ layers sharing the corners of their NbO_6 octahedra and PO_4 tetrahedra. The geometry of those layers derives from the hexagonal tungsten bronze and is compared to that of $K_7Nb_{14}P_9O_{60}$. This oxide represents the member *n* = ∞ of the structural family $(K_3Nb_6P_4O_{26})_n \cdot KNb_2PO_8$, whereas $K_7Nb_{14}P_9O_{60}$ previously described corresponds to *n* = 2.