A novel niobium phosphate bronze with a tunnel structure, K sub 3 Nb sub 6 P sub 4 O sub 26, member n= infinity of the series (K sub 3 Nb sub 6 P sub 4 O sub 26) n ter dot KNb …

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Description
A new niobium phosphate bronze with a tunnel structure K {sub 3} Nb {sub 6} P {sub 4} O {sub 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){angstrom}, b= 31.582 (2){angstrom}, c= 9.3859 (6){angstrom}. Its structure consists of (Nb {sub 3} P {sub 2} O {sub 13}){infinity} layers sharing the corners of their NbO {sub 6} octahedra and PO {sub 4} tetrahedra. The geometry of those layers derives from the hexagonal tungsten bronze and is compared to that of K {sub 7} Nb {sub 14} P {sub 9} O {sub 60}. This oxide represents the member n={infinity} of the structural family (K {sub 3} Nb {sub 6} P {sub 9} O {sub 26}){sub n}{center dot} KNb {sub 2} PO {sub 8}, whereas K {sub 7} Nb {sub 14} P {sub 9} O {sub 60} previously described corresponds to n= 2.