substance: V_nO_{2n+1}: n ≥ 3
property: crystal structure of V_3O_7

crystal structure: monoclinic, space group C_{2h}^6 – C2/c, unit cell: Fig. 1 [74W].

structural elements
(1) single chains of V(1)O_6 octahedra which are corner-linked; mean V – O distance 1.947 Å, typical of V^{4+}, (2) double chains of V(2)O_6 octahedra edge-shared in the *a*-*c* plane and corner-shared along the *b*-axis; mean V – O distance 1.938 Å, typical of V^{4+}, (3) zig-zag strings of trigonal bipyramids, V(3)O_5, linked by edges; mean V – O distance 1.83 Å, typical of V^{5+}, (4) zig-zag strings of V(4) and V(5) polyhedra linked by edges; mean V – O distances: V(4) – O 1.813 Å, V(5) – O 1.826 Å, both typical of V^{5+}. The structural data suggest that the compound may best be formulated $V_2^{5+}V^{4+}O_7$ [72C].

lattice parameters

a	21.921 Å	*T* = 298 K	*Z* = 12	74B
b	3.679 Å			
c	18.341 Å			
β	95.61°			
a	21.91 Å	*T* = 4 K		74B
b	3.68 Å			
c	18.29 Å			
β	95.7°			

References:

72C Casalot, A.: Mater. Res. Bull. 7 (1972) 903.

74B Bayard, M., Grenier, J. C., Pouchard, M., Hagenmuller, P.: Mater. Res. Bull. 9 (1974) 1137.

74W Waltersson, K., Forslund, B., Wilhelmi, K. A., Andersson, S., Galy, J.: Acta Crystallogr. B30 (1974) 2644.

Fig. 1.

V_3O_7. Unit cell projected on (010) [74W].