No. 1B-b18 $Pb(Mn_{1/2}Re_{1/2})O_3$
(M = 375.8)

1a A synthesis of $Pb(Mn_{1/2}Re_{1/2})O_3$ was reported by Venevtsev et al. in 1964. 64Ven

b 65Rog

phase	III	II	I
state	(A), F_{magn}	(A), P_{magn}	P, P_{magn}
crystal system		monoclinic	cubic
Θ [K]	103	393	

3a Ordered perovskite, $a = c$ = 4.043 Å, b = 4.012 Å, β = 90°33' at RT. 65Rog

4 Lattice distortion: Fig. 1B-b18-001.

11 Electrical conductivity: $\sigma = 1 \cdot 10^{-1}\,\Omega^{-1}m^{-1}$. 65Rog

12 Magnetic susceptibility and magnetic moment: Fig. 1B-b18-002.

The linear temperature dependence of χ^{-1}_{magn} with a positive value of $\Theta_{p\,magn}$ = 85 K, and the appearing of the spontaneous moment at 103 K, may indicate the presence of ferromagnetic properties in this compound, which is in agreement with the positive sign of the indirect exchange action proposed by Goodenough for Mn^{2+} and Re^{6+} ions. However, the magnitudes of the calculated theoretical spontaneous moments agree with the experimental values only on the assumption of an antiferromagnetic interaction between ions distributed in an ordered fashion over the octahedral vacancies. 65Rog

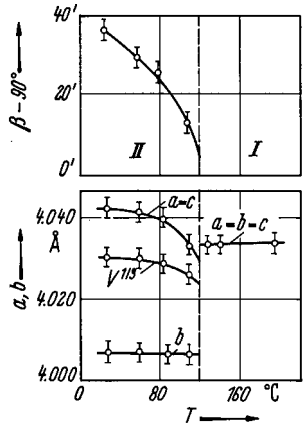

Fig. 1B-b18-001. $Pb(Mn_{1/2}Re_{1/2})O_3$. *a*, *b*, *c*, β, $V^{1/3}$ vs. *T* [65Rog].

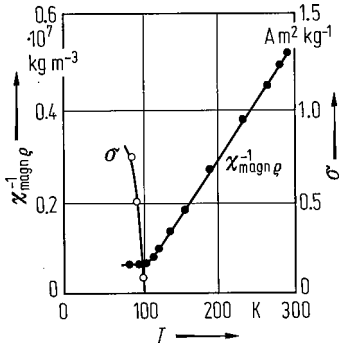

Fig. 1B-b18-002. $Pb(Mn_{1/2}Re_{1/2})O_3$. $\chi^{-1}_{magn\,\rho}$, σ vs. T [65Rog].

References

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65Rog Roginskaya, Yu.E., Venevtsev, Yu.N., Zhdanov, G.S.: Zh. Eksp. Teor. Fiz. **48** (1965) 1224; Sov. Phys. JETP (English Transl.) **21** (1965) 817.