

substance: Mn_2O_3

property: electrical conductivity, Seebeck effect

Mn_2O_3 is a cation deficient p-type semiconductor.

conductivity: Fig. 1.

activation energy for conductivity (cubic phase)

E_A	0.54 eV	$T = 500 \dots 800 \text{ K}$	sample annealed at 624°C ; in the range $300 \dots 500 \text{ K}$ this sample had an activation energy of 0.30 eV	70K
	0.64 eV	$T = 700 \dots 1200 \text{ K}$	samples metastable with respect to Mn_3O_4 at higher temperatures	75L

Seebeck coefficient

S	$+ 0.37 \text{ mV K}^{-1}$	$T = 300 \dots 400 \text{ K}$	cubic phase	70K
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References:

- 70K Klose, P. H.: J. Electrochem. Soc. 117 (1970) 854.
75L Logothetis, E. M., Park, K.: Solid State Commun. 16 (1975) 909.

Fig. 1.

Mn_2O_3 . Resistivity vs. reciprocal temperature for two ceramic samples obtained by pyrolysing MnO_2 at $T = 542^\circ\text{C}$ (1) and 545°C (2) [70K].

