

substance: chromium sesquioxide (Cr_2O_3)

property: hole mobility, pressure dependence of transport parameters

hole mobilities

μ_p	$3...5 \cdot 10^{-5} \text{ cm}^2/\text{V s}$	$T = 550 \text{ K}$	from Seebeck data on cold-pressed ceramics	69C
	$1...5 \cdot 10^{-8} \text{ cm}^2/\text{V s}$	$T = 350 \text{ K}$		
	$0.76 \text{ cm}^2/\text{V s}$	$T = 873 \text{ K}$	ceramic sample	51H

pressure dependence of transport parameters

E_A	0.4 eV	$p = 1 \text{ atm},$ low T	activation energy for conductivity	67V
dE_A/dp	$-0.8 \cdot 10^{-6} \text{ eV bar}^{-1}$			
dST/dp	$-0.2 \cdot 10^{-6} \text{ eV bar}^{-1}$			

At very high pressures, collapse to a metallic state occurs (Fig. 1).

References:

- 51H Hauffe, K., Block, J.: Z. Phys. Chem. 198 (1951) 232.
67V Rimas Vaisnys, J.: J. Appl. Phys. 38 (1967) 2153.
69C Cojocaru, L. N.: Z. Phys. Chem. (Frankfurt am Main) 64 (1969) 255.
71K Kawai, N., Mochizuki, S.: Phys. Lett. 36A (1971) 54.

Fig. 1.

Cr_2O_3 , Fe_2O_3 . Resistance vs. pressure up to very high pressures [71K].

