

ELECTRICAL RESISTIVITY MEASUREMENTS ON DILUTE  
ALLOYS OF NiCo, NiV, NiPt AND NiAl

by

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A thesis submitted in part fulfillment for the  
degree of Master of Science in the University of

Nairobi


February 1977.

This thesis is my original work and has not been presented for a degree in any other University.




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## ABSTRACT

Electrical resistivity measurements have been made on Ni, Ni-5 at% Co, Ni-5 at% V, Ni-5 at% Pt and Ni-5 at% Al in the temperature range from 20 °C to at least 70 °C above the Curie temperatures of the alloys. For  $T > T_c$  the temperature coefficients of resistivity of Ni as well as of the NiCo and NiPt alloys showed a logarithmic divergence whereas the NiV and NiAl alloys showed no such logarithmic divergence. For  $T < T_c$  none of the resistivity coefficients showed a logarithmic divergence. The additional resistivity caused by alloying Ni with the different solutes shows a quadratic relationship (of the same kind as Linde's rule) to a quantity which may be interpreted as the effective valence difference between the solvent (Ni) and the solute.