FIRST AND SECOND PRESSURE DERIVATIVES
OF THE BULK MODULUS OF SODIUM

by

K. J. Dunn and A. L. Ruoff

Department of Materials Science and Engineering
Cornell University
Ithaca, NY 14850

ABSTRACT

Martinson's ultrasonic data of sodium is used to obtain the isothermal bulk modulus and its first and second pressure derivatives at zero pressure. The local pseudopotential method proposed by Ashcroft and Langreth is used to obtain theoretical values for these quantities. The results are compared with experimental data. The first derivative is predicted within a few percent while the theoretical and experimental values of the second derivative differ about thirty percent.