

ABSTRACT

The pressure derivatives of the elastic stiffness constants of cadmium have been measured by the ultrasonic pulse echo technique. In terms of dC/dP the results are: C_{11} , 9.29; C_{33} , 7.26; C_{66} , 2.59; C_{44} , 2.38; C_{12} , 4.10; C_{13} , 5.66; and $C_{11} + C_{12} + 2C_{33} - 4C_{13}$, 5.27. These values are comparable with those previously found for polyvalent aluminum and magnesium. An attempt was made to fit to cadmium the theory of Reitz and Smith for the elastic constants of magnesium. A fit could not be made, presumably because of the high overlap electron populations which arise from the anomalously high (c/a) ratio of cadmium. Consequently the pressure data could not be interpreted in terms of this model as was the same data for magnesium.