

Calculations of the elastic stiffnesses following the model of Leigh have been found to be unsuitable in the case of cadmium. The major source of inapplicability is believed to be associated with the handling of the contributions to the elastic stiffnesses from the large hole pockets in the Brillouin zone. Since the contributions from the Coulomb energy and the full zone energy are fairly reliable, the model has been turned around to estimate the contributions from the overlap-hole energies by subtracting the Coulomb and full zone contributions from the experimental values.

Because of the failure of the model for the constants themselves, no attempt was made to calculate the effect of hydrostatic pressure on them. The experimental pressure dependence of the elastic constants of cadmium are recorded in Table 2 and it is noted that for cadmium as well as other polyvalent metals, aluminum and magnesium, the values of $\pi = - d \ln C / d \ln r$ are anomalously large.