IV CONCLUSION

Previously, Simon[16], Saxena[17] et al. and Brown[18] have calculated certain elastic properties of sodium. Saxena[17] et al. calculated the binding energy and compressibility both for bcc and hcp phases; however, the Born repulsive term was not included. Simon[16] has done similar calculations on the elastic modulus and its first pressure derivative using an improved theory of Gombas.[19] The theoretical results were compared with experimental values obtained by Diederichs and Trivisonno[20] and Daniels[21]. Quite a discrepancy was found for the bulk modulus and its pressure derivative. The present calculation shows much better agreement between the theoretical values and experimental values for the isothermal bulk modulus and its first pressure derivative. There is a slight discrepancy in the second pressure derivative. However, if we consider the simplicity of the theory and the fact that there is an estimated 10% standard error in the experimental value for the second derivative the result is actually fairly good.

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