

elastic constants (obtained from the data of Table 5) and from the isothermal pressure derivatives of the adiabatic elastic constants (Table 5) are listed in Table 7. The isothermal pressure derivatives of the adiabatic elastic constants were used instead of the purely isothermal quantities because the conversion would require knowledge of the complete set of the third-order elastic constants [Thurston, 1967]. However, the correction is likely to be only small. The results obtained for the lattice parameters are shown in Figure 4. The results differ from those in  $\text{Al}_2\text{O}_3$  [Gieske and Barsch, 1968] in that the linear compressibilities of the two directions in the hexagonal base plane ( $b$  and  $c$ ) are higher and less pressure-dependent than the linear compressibility in the direction of the hexagonal axis ( $a$ ). The error bars indicate the uncertainty estimated from the errors of the ultrasonic input data. No directly measured data on the pressure dependence of the lattice parameters of forsterite are available for comparison.

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