

Comparison of compressibilities of wollastonite and parawollastonite

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The compressibilities of wollastonite and parawollastonite were determined by single crystal high pressure X-ray diffraction method with a modified Merrill-Bassett diamond anvil cell. The crystals used were wollastonite(P-1) from Kasuga, Gifu Prefecture, Japan and parawollastonite(P21/a) from Kushiro, Hiroshima Prefecture, Japan. Lattice parameters of wollastonite were measured up to 6.1GPa. The bulk modulus determined by the Birch-Murnaghan equation of state was $K_0=107(2)$ GPa(assuming $K'=4$) and the axial compressibilities are $B_a=3.67(6)\times 10^{-3}$ GPa⁻¹, $B_b=2.23(4)\times 10^{-3}$ GPa⁻¹ and $B_c=2.82(6)\times 10^{-3}$ GPa⁻¹ for wollastonite. For parawollastonite, lattice parameters were measured up to 3.7GPa, and the bulk modulus is $K_0=115(2)$ GPa(assuming $K'=4$) and the axial compressibilities, $B_a=3.3(3)\times 10^{-3}$ GPa⁻¹, $B_b=2.25(5)\times 10^{-3}$ GPa⁻¹ and $B_c=2.93(3)\times 10^{-3}$ GPa⁻¹ were obtained.