The equation of state of clinohumite

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A compression experiment was done to a F-bearing hydroxylclinohumite using the diamond anvil cell combined with the single crystal X-ray diffraction in this study. The cell parameters are: a=4.7301(3) Å, b= 10.2192(1) Å, c= 13.6242(2) Å, α=100.826(5)°, V=646.85(8) Å^3. The clinohumite's composition is $Mg_{8.77}Fe_{0.01}Ti_{0.19}Si_{3.90}O_{17.16}H_{1.27}F_{0.84}$. A third-order Birch-Murnaghan equation of state was determined from the unit-cell data up to 30 GPa for clinohumite: K_0=101.6 GPa, K'=3.56. In this article, we will discuss the influence of water and fluorine on the density and elastic properties of clinohumite.