High-P, High-T Equation of State of Omphacite: Precise determination of density of subducted MORB

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In order to estimate the density of subducted MORB precisely, high-P high-T equation of state of Ca-Eskola rich (9 mol%) omphacite was determined by in-situ X-ray experiments. The derived thermoelastic parameters are KT = 115(2) GPa, K' = 5.0 (fixed), dK/dT = -0.019(4) GPa/K, a = 2.1(4) x 10-5 K-1, b = 0.9(7) x 10-8 K-2 while alpha = a + bT. This result is consistent with simple estimation from those of Diopside and Jadeite in literatures. Thus, Ca-Eskola component should have little influence for thermoelastic character of clinopyroxene.