

Equation of state of perovskite solid solution of $\text{Mg}_{0.9}\text{Al}_{0.2}\text{Si}_{0.9}\text{O}_3$ composition

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In situ X-ray diffraction experiments for aluminous perovskite of $\text{Mg}_{0.9}\text{Al}_{0.2}\text{Si}_{0.9}\text{O}_3$ composition were performed in the pressure ranges up to 13 GPa using synchrotron radiation at Photon Factory, Tsukuba, to determine the equation of state. Bulk modulus of the aluminous perovskite was obtained as $K_0=198\pm 27\text{GPa}$, when $K'_0=4$ was assumed. This K_0 value is about 20 % lower than that of MgSiO_3 perovskite reported so far.