Structural and dynamical properties of Mg2SiO4 at high pressures

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Molecular dynamics simulations were carried out to study structural and dynamical properties of Mg2SiO4 melts. Pair correlation functions g(r), diffusion constants, and shear viscosity were obtained at several pressures (5GPa -- 29GPa). By compression, the coordination number of Si is gradually increased from 4 to 6, and SiO4 tetrahedra are transformed to SiO6 octahedra. Diffusion constants are not increased but decreased by compression, contrary to those of SiO2 melts. We will also discuss the dependence of shear viscosity on pressure.