In situ viscosity measurement of Diopside-Jadeite melt at high pressure


Viscosity of silicate melt in diopside50jadeite50 omposition was measured with falling sphere method using X-ray radiograph. An X-ray CCD camera (C4880, Hamamatsu Photonics Co.) was used to observe the sample, and High pressure experiments were carried out using a Kawai (MA-8) type multianvil apparatus, which is driven by a DIA-type guide block in a uniaxial press (SPEED1500). Density of melt was estimated by molecular dynamics simulation using an interatomic potential model by Matsui (1998). The MD basic cell contained 3000 atoms, and the calculation was carried out in 100 ps.

The experiments were carried out from 3.0 to 7.9 GPa. The slightly positive dependence of viscosity was confirmed at 1800 and 1900 degree Celsius up to 7.9 GPa.

Viscosity of silicate melt in diopside50jadeite50 omposition was measured with falling sphere method using X-ray radiograph. An X-ray CCD camera (C4880, Hamamatsu Photonics Co.) was used to observe the sample, and High pressure experiments were carried out using a Kawai (MA-8) type multianvil apparatus, which is driven by a DIA-type guide block in a uniaxial press (SPEED1500). Density of melt was estimated by molecular dynamics simulation using an interatomic potential model by Matsui (1998). The MD basic cell contained 3000 atoms, and the calculation was carried out in 100 ps.

The experiments were carried out from 3.0 to 7.9 GPa. The slightly positive dependence of viscosity was confirmed at 1800 and 1900 degree Celsius up to 7.9 GPa.