

Synthesis of highly dense and fine-grained lower crustal minerals by vacuum sintering technique

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It is important to fabricate polycrystalline rock-forming minerals which have controlled crystallographic orientation, grain size, sample shape, mineral composition, chemistry (e.g., trace elements), and phases (including melt) for investigating the physical and chemical properties of the Earth' interior by room experiments. The vacuum sintering method at ambient pressure has been applied. We developed synthesis method of a wide variety of polycrystalline minerals, including single phase aggregates of anorthite ($\text{CaAl}_2\text{Si}_2\text{O}_8$) and, two phase composite of anorthite + diopside ($\text{CaMgSi}_2\text{O}_6$), anorthite + quartz (SiO_2) with homogeneous microstructure, which are good analogues for lower crustal composites.

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