

Grain Growth Rates of MgSiO<sub>3</sub> Perovskite and Periclase Under Lower Mantle Conditions  
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## Grain Growth Rates of MgSiO<sub>3</sub> Perovskite and Periclase Under Lower Mantle Conditions

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The grain growth rates of MgSiO<sub>3</sub> perovskite and periclase in aggregates have been determined at 25 gigapascals and 1573 to 2173 kelvin. The average grain size ( $G$ ) was fitted to the rate equation, and the grain growth rates of perovskite and periclase were  $G^{10.6} = 1 \times 10^{-57.4} t \exp(-320.8/RT)$  and  $G^{10.8} = 1 \times 10^{-62.3} t \exp(-247.0/RT)$ , respectively, where  $t$  is the time,  $R$  is the gas constant, and  $T$  is the absolute temperature. These growth rates provide insight into the mechanism for grain growth in minerals relevant to the Earth's lower mantle that will ultimately help define the rheology of the lower mantle.