

# Melt inclusions in Young caldera &#8211; Central cone stage (66-42 ka) of Hakone Volcano: Magma mixing and sulfur supply

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Microprobe studies were made for melt inclusions in phenocrysts (orthopyroxene, clinopyroxene, and plagioclase) in the Tokyo pumice (52 ka), the Sanshokuki pumice (46 ka), and the Central cone pumice (42 ka) of Hakone Volcano. In the Tokyo pumice, the melts have a large compositional range. Olivine phenocryst traps mafic melts (SiO<sub>2</sub>: 50-57 wt%) and orthopyroxene, clinopyroxene, and plagioclase phenocrysts include intermediate to felsic melts (SiO<sub>2</sub>: 60-72 wt%). In contrast, there are large compositional gaps between the mafic and felsic melts for the Sanshokuki pumice and the Central cone pumice, respectively. The melt compositions of the Tokyo pumice reveal a tholeiitic differentiation trend, on the other hand, those of the Sanshokuki pumice and the Central cone pumice show calc-alkali magma trend by the magma mixings between the mafic and felsic melts.

Sulfur supplies in these eruption stages were estimated based on the sulfur contents of the melt inclusions. The big eruption of the Tokyo pumice is estimated to have supplied 31 mega ton of sulfur, and the eruptions of the Sanshokuki pumice and the Central cone pumice are estimated to have provided 0.16 and 0.18 mega ton, respectively.