

# Microtextures and vesiculation of pumice on Ulleung Island, Korea: Implications for eruption features

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## Background of Research

The pumice is a highly vesicular pyroclast formed from explosive eruptions and typically comprises 15-50% of the total pyroclastic material [1]. It has been considered as an important volcanic material to understand the characteristics of Plinian-style volcanic eruption. Our study was carried out to elucidate textural heterogeneities of pumice from the volcanic eruption on Ulleung Island, Korea. We choose representative gray pumice samples (frothy and tube pumice) based on dominant shape of macrovesicles.

## Results and Discussion

Pumice samples are phonolitic in composition ( $58 \pm 1$  wt%  $\text{SiO}_2$ ) [2] and contain alkali feldspar, plagioclase, and biotite. The porosity of pumice is  $57 \pm 4$  % on average. They can be classified into moderately vesicular and highly vesicular pumices based on classification of vesiculation [3]. Thin section and SEM images of pumice samples show various steps of textural development in terms of vesicles size shapes and distribution. Vesicle shape in pumice vary from spherical, oval to tubular with a wide range of size varying 3nm to 150mm. In general, tube pumice are prevalent in highly stretched vesicles, whereas the frothy pumice consists of weakly stretched vesicle such as spherical and oval type. Also, large vesicles formed networks connected by isolated small vesicles. It implies that vesiculation process was completed by continuous vesiculation during the period from gas exsolution in magma immediately before contact with air.

[1] Klug and Cashman (1996) *Bull Volcanol*, **58**, 87-100 [2] Im *et al* (2011) *J. Miner. Soc. Korea*, **24**, 151-164 [3] Houghton and Wilson (1989) *Bull Volcanol*, **51**, 451-462