

HIGHLIGHTS AND BREAKTHROUGHS

Bubbles do matter!

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Abstract: Silicate melt inclusions (SMIs) are a very reliable tool for reconstructing the composition of magma (silicate melt + volatiles) and tracing its evolution from mantle depths to the Earth’s surface. Although the scientific community already knew about the ability of shrinkage bubbles in SMIs to trap a significant fraction of CO₂, quantitative estimates were still lacking. In the article “Melt inclusion CO₂ contents, pressures of olivine crystallization, and the problem of shrinkage bubbles” by Wallace et al. (2015) (included in the special collection “Glasses, melts, and fluids, as tools for understanding volcanic processes and hazards”) the authors provide a numerical estimate of the amount of initial CO₂ dissolved in the melt that is lost to shrinkage bubbles and a computational method to estimate such an amount in absence of experimental studies and direct measurements by micro-Raman spectroscopy.

Keywords: Melt inclusion; shrinkage bubble; carbon dioxide; volatile content