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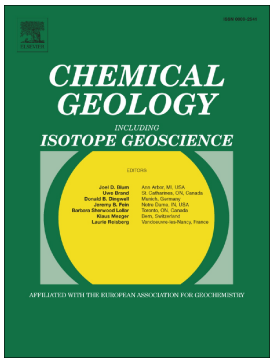

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New method for initial composition determination of crystallized silicate melt inclusions

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ABSTRACT

Silicate melt inclusions (SMI) trapped in minerals and carried up to the surface by volcanism are routinely studied in order to determine the pre-eruptive volatile budgets of volcanic systems. The volatile contents of SMI that are affected by post-entrapment processes, such as crystallization (PEC) and/or bubble nucleation during cooling, are generally difficult to interpret. Therefore, there is a general preference to select the melt inclusions that experienced minimal post-entrapment effects. Conversely, SMI can be homogenized at high temperature and quickly quenched. This method is controversial because heating may induce leakage of water