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**LETTER**

**Metals in quartz-hosted melt inclusions: Natural facts and experimental artifacts**

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**ABSTRACT**

Studies of melt inclusions trapped in magmatic phenocrysts can provide a new perspective on several key outstanding problems in the understanding of the genesis of orthomagmatic ore deposits, particularly with respect to the concentration of metals in parental magmas. The published data shows a mismatch between low and high abundances of Cu (and Ag) in unheated and remelted melt inclusions, respectively. This experimental study investigates the possibility that quartz-hosted rhyolitic melt inclusions may change their composition during laboratory heating under different conditions. Exceptional volatility of Cu and Ag and inert behavior of other metals (Zn, Pb, Mo, Sn, W) and lithophile trace elements at high temperature (850 °C) is demonstrated. Heating experiments with melt inclusions require specific conditions that should take the high volatility of Cu and Ag into account. The open system behavior of Cu and Ag can also affect the composition of melt inclusions within the time frame between trapping and eruption