Ordovician Seawater Composition: Evidence from Fluid Inclusions in Halite


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Fluid inclusions in halite can directly record the major composition of seawater, however Ordovician halite is very rare. Ordovician is a key time during the evolution history. However there are no Ordovician seawater data reported except from the data of halite from the boundary of Ordovician and Silurian. Ca2+ and Mg2+ concentration were determined in brines from large secondary inclusions, located on periphery of the chevron. In brine from the first inclusion the Ca2+ content was 87.9 and 75.8 g/l (81.9 g/l in average). In this study, we report the major compositions from middle Ordovician halite in China. Ordovician fluid inclusions give the direct evidence that the Ordovician seawater is Ca-rich seawater of calcite sea, with the Na–K–Mg–Ca–Cl type seawater composition (Kovalevich et al., 1998; Lowenstein et al., 2001), while late-stage potash salts in marine evaporates is the KCl types (Hardie, 1996).

Key words: Ordovician, seawater composition, fluid inclusion, halite

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References


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