Distribution of Oxygen isotopes in CAIs of the Murchison meteorite

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Oxygen isotope ratios of individual crystals and textural relationships among CAIs in Murchison CM chondrite have been analyzed by SIMS and by SEM-EDS. The primary phases in CAIs, i. e., spinel, diopside, forsterite, hibonite, and perovskite, are enriched in 16O component with of -35 to -60 per mil relative to SMOW. However, phyllosilicates in the CAIs are enriched in 16O with 0 to +15 per mil relative to SMOW. The 16O-depleted value is consistent to the model that phyllosilicates in CAIs have formed as the result of aqueous alternation. This evidence indicates that all primary phases of CAIs in Murchison have formed from 16O-enriched reserver.