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⁵⁰Ti isotope data from CAIs and Na-Al-rich chondrules: Evidence for different refractory precursors in the ordinary chondrite (OC) region

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The link between Ca,Al-rich inclusions (CAIs) and chondrules is still unsolved. Na-Al-rich chondrules may provide insights into this issue, as they are believed to have been formed from refractory precursors including CAIs [1]. CV CAIs show an average ⁵⁰Ti excess of ~9ε [2] and the resulting Na-Al-rich chondrules should also show an ⁵⁰Ti excess if CAIs with an excess were part of the precursor. To test this hypothesis the Ti-isotope systematic of 18 Na-Al-rich chondrules (15 from OCs, 3 from COs) and 8 CAIs (6 from OCs and 2 from COs) were investigated. The study revealed that all CAIs have an excess in ⁵⁰Ti linking the OC, CO, and CV CAIs to a common formation region. Both CO Na-Al-chondrules have a high excess in ⁵⁰Ti and CAIs have to be part of the precursors. Contrary, non of the OC Na-Al-rich chondrules show an excess in ⁵⁰Ti. Therefore, the OC Na-Al-chondrules must have been formed from different unknown refractory precursors similar to the known CAIs but without an excess in ⁵⁰Ti. [1] Ebert and Bischoff (2016) GCA 177, 182-204 [2] Davis et al. (2017) GCA, in press,

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