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Effects of thermal alteration on the presolar grain inventories of chondritic meteorites.

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Circumstellar silicates are the most abundant type of presolar grains accessible for in situ single grain analysis (up to 250 ppm) [e.g.,1], followed by silicon carbide (SiC), and Al-rich oxides. Variations in the abundances of presolar grains, especially silicates, are indicators for parent body processes, as well as potential heterogeneities in the protosolar nebula. The majority of presolar dust studies have been conducted on grains from chondrites of petrologic types ≤ 3 , while the data set for types ≥ 3.1 is still very limited [2,3]. Here, we report results from a study of the CV_{red} Leoville (3.1–3.4, [4]). O-isotope mapping of matrix material was conducted by NanoSIMS. We identified 11 O-anomalous grains (10 silicates, one Al-oxide), corresponding to an O-anomalous grain abundance of ~ 110 ppm. This is $\sim 50\%$ lower than abundances in the most primitive chondrites, likely indicating beginning presolar grain destruction by thermal alteration.

[1] Floss, C. & Haenecour, P.. (2016) *Geochem. J.* 50, 3–

25. [2] Bose, M. et al. (2014) *EPSL* 399, 128–138.

[3] Davidson, J. et al. (2014) *MAPS* 49, 2133–2151.

[4] Bonal, L. et al. (2006) *GCA* 70, 1849–1863.

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