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Isotopic and Mineralogical Characterization of Presolar Material in CR Clan Chondrites.

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Primitive solar system materials contain varying amounts of isotopically anomalous presolar dust that formed in the outflows of evolved stars and in the ejecta of supernovae [e.g.,1]. Silicate and oxide grains are among the most abundant presolar grains types. The CR and related CH and CB chondrites include some of the most primitive meteorites and show large bulk ^{15}N-enrichments [2]. High abundances of presolar O-anomalous grains were reported in CR chondrites [e.g.,3]. We report significant presolar dust concentrations in fine-grained chondrule rims of CR chondrites, and low abundances in hydrated lithic clasts in CH and related chondrites. This indicates a nebular origin of the rim material, which escaped extensive secondary processing. In the hydrated clasts, no correlation between highly ^{15}N-rich matter and presolar dust is evident, contrasting observations for primitive interplanetary dust. This suggests different nebular reservoirs for the ^{15}N-rich and the presolar grain-rich materials in primitive meteorites.

[1] Hoppe P. (2008) *Space Sci. Rev.* 138:43–57. [2] Krot A. N. et al. 2002. *Met. Planet. Sci.* 37:1451–1490. [3] Floss C & Stadermann F. J. 2009. *GCA* 73:2415.

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