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High precision ^{26}Al study of refractory components in chondrites

Mishra*, R., Chaussidon, M. *CRPG-CNRS, Université de Lorraine, BP 20, 54501 Vandoeuvre-lès-Nancy, France. ritesh@crpg.cnrs-nancy.fr.

The development of high precision measurement of Mg isotopic composition by multi-collector ion microprobe allows to determine (when ^{26}Al was present at the time of last melting) both the slope of the mineral isochron (the initial $^{26}\text{Al}/^{27}\text{Al}$) and the intercept (the initial $\delta^{26}\text{Mg}$). If Al and Mg isotopes were homogeneously distributed in the accretion disk, variations between different objects of their initial $^{26}\text{Al}/^{27}\text{Al}$ can be ascribed to time differences between their last melting events. Variations in initial $\delta^{26}\text{Mg}$ values reflect various nebula history (open or closed system) of the precursors from their condensation to the last melting event they underwent. We report here new high precision data for a set of CAIs, AOAs and Al-rich chondrules from the CV chondrites Vigarano and Efremovka. These data constrain (i) the level of homogeneity of Al and Mg isotopes in the accretion disk, (ii) the origin and history of CAIs, AOAs and Al-rich chondrules and (iii) the timing of condensation of their precursors relative to the very early evolution of the disk.

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