

MURCHISON: COMPOSITION RELATIONS BETWEEN ISOLATED GRAINS AND AGGREGATES

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Grossman and Olsen (1978) described two major aggregate types in the Murchison C2 chondrite, pyroxene (Px)-rich and Px-poor, and proposed that they formed by condensation and accretion in the solar nebula. About 1000 microprobe analyses were made in one thin section of olivine (Ol) and Px both in aggregates and as isolated matrix grains. In most aggregates, Ol compositions show a sharp, strong peak at Fa 0-1 and only rarely extend to Fa 5. The others, primarily Px-poor, contain Ol ranging from Fa 20-50, rare grains from Fa 0-20 and a broad peak centered near Fa 35. Thus, aggregates have an overall bimodal distribution of Ol compositions. Matrix grains show a similar pattern; however, relative to grains in the range Fa 0-1, those in the range Fa 20-50 are about twice as abundant as in the aggregates. Although some matrix grains are derived from adjacent aggregates, extensive spatial clustering of similar compositions is not observed. In all aggregates, Px is mainly enstatite (Fs 0-15) with minor Ca-Al (0-15 wt %)-Ti (0-2.5 wt %)-clinopyroxenes. Essentially complete compositional overlap for all Ol and Px exists between matrix and aggregates, implying that both groups are drawn from the same population. The coexistence of Ol (Fa 16-50) with virtually Fe-free Px (Fs 0-5) within some aggregates suggests that they are mechanical mixtures of grains derived from different sources. The overall Ol/Px ratio in the matrix is 2.1, but local variations from ~ 1.8 -2.6 are observed in areas as large as 8 mm². This compares with a ratio of only 0.7 for the 36 aggregates studied. This suggests that either break-up of Px-poor aggregates or aggregation of Px-rich ores was more efficient or that the meteorite is a non-representative sample of its precursor materials.

Grossman, L. and E. Olsen, 1978. *EPSO* 41, 111.

DEPTH AND SIZE DEPENDENCE OF ⁵³Mn ACTIVITY IN CHONDRITES

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Depth profiles of cosmic ray induced ⁵³Mn and track densities have been measured in cores taken from four chondrites: Madhipura, Udaipur, Bansur and St. Severin. Extensive measurements of track densities in the surface samples have established the pre-atmospheric shapes and sizes of these