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Chemical and mineralogical studies of the CV3-chondrite NWA 1807

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Chemical and mineralogical studies of the CV3-chondrite NWA 1807 revealed that it is an interesting polymict breccia. Besides typical CV3 lithologies two distinct fragments were studied in more detail: (a) a dark inclusion and (b) a nearly round structure of about 3 mm in apparent diameter. Considering texture and the matrix composition of olivine both fragments can clearly be distinguished from the bulk CV3 rock. The dark inclusion does not contain any chondrules or other coarse-grained objects. Considering the round object the constituents (chondrules, inclusions, fragments) are roughly three times small than those in the bulk rock (~215 μm against ~625 μm).

Differences in the Fo-contents of the matrix olivines clearly indicate independent origins. Mean matrix olivine of the dark inclusion (60.3 mol%) is significantly more Fo-rich than the average matrix olivine composition of the round inclusion (54.8 mol%) and of the bulk meteorite host (52.2 mol%).

Considering all petrologic aspects, it is unclear, if the different lithologies derive from the same parent body or whether the studied fragments were incorporated during late accretion or as projectiles.

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