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**It's getting hot in here: Thermal metamorphism of the least equilibrated CK Chondrite**

The CK chondrites are a group of highly-oxidized carbonaceous chondrites that experienced various degrees of thermal metamorphism on their parent asteroid. Based on the chemical heterogeneity of olivine, Northwest Africa (NWA) 5343 is the least metamorphosed CK chondrite reported so far. To better constrain the lower limit of metamorphism in the CK chondrites, we performed a detailed analysis of matrix material in NWA 5343, including characterization of the texture and bulk composition and analysis of individual silicate minerals. Though silicate minerals in the matrix seem to be equilibrated to roughly the same extent throughout the sample, there are recognizable differences in grain size and shape that may have resulted from transient heating events during impacts. The difference between the extent of chemical equilibration and texture may also suggest that grain size and shape are still sensitive to metamorphism when silicate mineral equilibration is nearly complete. To evaluate the possibility of a continuous metamorphic sequence between the CV and CK chondrites, we compared the bulk matrix composition of NWA 5343 to the CV chondrite, Vigarano. Although the matrix composition of NWA 5343 could be derived by secondary processing of a Vigarano-like precursor, porosity and texture of matrix olivine in NWA 5343 are hard to reconcile with a continuous metamorphic sequence.