

Tuesday, March 18, 2003
CARBONACEOUS CHONDRITES: TALES FROM THE DARK SIDE
8:30 a.m. Marina Plaza Ballroom

Chairs: M. K. Weisberg
J. M. Friedrich

Pravdivtseva O. V. * Hohenberg C. M. Meshik A. P.

The I-Xe Age of Orgueil Magnetite: New Results [#1863]

New studies of two pure separates of Orgueil magnetite confirm the younger I-Xe age 4.568 Ga rather than the previously reported and anomalously old age 4.573 Ga.

Hua X. * Huss G. R. Tachibana S. Sharp T. G.

Oxygen Isotopic Compositions of Fayalite in the Kaba CV3 Carbonaceous Chondrite [#1702]

O-isotopic compositions of fayalite were measured in two objects of the oxidized Kaba carbonaceous chondrite. All fayalite data fall on the TF line. Compositions of nearby forsterites scatter around the CCAM line; their $\delta^{17}\text{O}$ values range from -6.03 to -2.37% .

Cosarinsky M. * Leshin L. A. MacPherson G. J. Krot A. N. Guan Y.

Oxygen Isotopic Composition of Ca-Fe-rich Silicates in and Around an Allende Ca-Al-rich Inclusion [#1043]

Allende Ca-Fe-rich silicates have a variable oxygen isotopic composition along a mass fractionation trend, slightly below the TFL. Their occurrence, texture, mineralogic and isotopic composition are better explained by formation in a parent body setting.

Shimoda G. * Nakamura N. Kimura M. Nohda S. Yamamoto K.

4.4 Ga Alteration of Chondrules in Allende (CV3) Parent Body: Evidence from the Rb-Sr System [#1597]

To evaluate the alteration process in CV parent body, Sr isotopic compositions are determined for the eighteen chondrules from the Allende chondrite. We present three components mixing to explain Rb-Sr system of the chondrules.

Abreu N. M. * Brearley A. J.

HRTEM and EFTEM Observations of Matrix in the Oxidized CV3 Chondrite ALH 84028: Implications for the Origins of Matrix Olivines [#1397]

TEM and EFTEM studies of matrix olivines in ALH 84028 show they contain inclusions of pentlandite, chromite and poorly graphitized carbon. Voids are also common. An origin by dehydration of precursor phyllosilicates seems most probable.

Weisberg M. K. * Connolly H. C. Jr. Ebel D. S.

Amoeboid Olivine Aggregates in CR Chondrites [#1513]

AOAs in CR chondrites are irregular-shaped objects consisting of olivine surrounding refractory-rich minerals. They had a complex history that included nebular gas-solid condensation, reaction of mineral phases with the nebular gas, followed by sintering/coarsening of the assemblage.

Schoenbeck T. W. * Palme H.

Silicon Concentrations in Metal Grains of CB-, CH- and CR-Chondrites — Implications for Their Formation [#1605]

New EMP analyses of metals in CH- and CR-chondrites are presented. Most metals have less than 70 ppm Si, only some CR-metals are higher. Calculations show that it is not possible to define the origin of CC-metal on the basis of Si in metal.

Hezel D. C. * Brenker F. E. Palme H.

Evidence for Fractional Condensation and Flash Reheating from Volatile Rich Objects in CH-Chondrites [#1595]

CH-chondrites are strongly depleted in volatiles. Two volatile rich chondrules with bulk MnO up to 2.59 wt% were found, supporting the hypothesis that some CH-components formed during fractional condensation and were subsequently reheated to >1968 K.

Campbell A. J. * Humayun M.

Zoned and Unzoned Metal Grains in the CH Chondrites ALH 85085 and PCA 91467 [#1410]

Trace siderophile element profiles were measured in Ni-zoned and Ni-unzoned metal grains in two CH chondrites. Implications regarding the formation of this metal are discussed.

Righter K. * Campbell A. J. Humayun M.

Diffusion of Siderophile Elements in Fe Metal: Application to Zoned Metal Grains in Chondrites [#1373]

Diffusion coefficients have been measured for siderophile elements in Fe metal between 1150° and 1400°C. These new results are applicable to a range of problems in meteoritics. We discuss application to zoned metal grains in metal-rich chondrites.

Friedrich J. M. * Wolf S. F. Voss H.-P.

Tagish Lake: Bulk Chemistry and Terrestrial Alteration [#1562]

We discuss relationships among major, minor, and trace elements within Tagish Lake and among other carbonaceous chondrites. Additionally, we discuss the significant effects of terrestrial alteration exhibited by Tagish Lake samples gathered from ice and snow.

Garvie L. A. J. * Buseck P. R.

Sulfur-rich Carbonaceous Nanoglobules in the Tagish Lake Meteorite [#2014]

Electron energy-loss spectroscopy (EELS) with transmission electron microscopy (TEM) is used to reveal the chemistry of carbonaceous nanoglobules in the Tagish Lake meteorite. The nanoglobules are S-rich with minor N and O.

Nakamura K. * Nakashima S. Shiota D. Zolensky M. E. Keller L. P.

In Situ Heating Behavior by Infrared Microspectroscopy of Organic Components in Tagish Lake Meteorite [#1432]

We report the micro-FTIR analysis of Tagish Lake containing the hollow organic globules and the step heating experiments, suggesting Tagish Lake may have never experienced higher than 120°C after the formation of membrane-like hollow organic globules.