

Cometary Chip 4

Track 3

Images

Aerogel Cell: Unknown

Track and Grains:

[Track_3_300um.jpg](#)

[Track_3_x50_trans_2.jpg](#)

[Track_3_x50_trans_3.jpg](#)

Microtomed samples:

[FC4,0,3,1,0_frag13A_track2.pdf](#)

Track History: Chip 4 was found on the surface of the canister after opening and has not been tied to a specific cometary cell. The terminal grain from this track was removed, embedded in epoxy and microtomed by K. Messenger and M. Zolensky 1/21/06.

Track Characteristics:

Type A carrot with terminal grain visible.

Track Length: ~300 μm

Terminal Particle diameter: ~3 μm

Allocation History

Results

Tomeoka [TEM]: Mostly aerogel. Some large grains. Relatively large grains are: Al-Zr-O material (amorphous) Si-O phase (crystalline), and Si-Ca-Mg-Al-O material (amorphous), and Ti-O phase (crystalline), roughly in the order of abundance. Minor constituents are: K-Al-Si-O phase (crystalline), Ca-O phase (crystalline), and (3) Fe-O phase (crystalline). EDS analyses and SAED patterns of K-rich grain suggest that it may be related to K-feldspar. Ca rich grain might be carbonate.

Kearsley [SEM]: The grain of interest has apparently a high Ca content, and we believe that the Si may be from a thin aerogel envelope as it seems to be highest off to one side of the main Ca-rich area. Possibly a carbonate grain.

Leroux [TEM]: Many tiny grains of Ca oxides form by decomposition of probable carbonate in the e beam, so there were carbonates on the sample, but he sees definite contamination by calcite (verified by ED) elsewhere on the section, so maybe all of these are contamination. Large grains containing Zr and Al. Large and small grains containing Al_2O_3 and SiO_2 (ratio Al/Si typically 1-2/10). Small Ti-oxide (occasionally Fe-oxides) grains. A very large number of small, thin elongated particles (platelets or needles) that appeared rich in Mg and Si (ratio Mg/Si typically within the range 1/5-3/5) or rich in Al and Si.

Track:



Data Files: No Data