

Sample Results Summary Sheet

Please return this form to the Curator for each allocated Sample

Sample ID: RA-QD02-0034

Type and date of analysis performed:

Potted butt: Scanning electron microscopy (SEM) at Ibaraki University on Feb. 7, 2011. The potted butt was observed with carbon coating.

Potted butt: Field emission scanning electron microscopy (FE-SEM) at Hitachi High-technologies Co. on Feb. 9, 2011. The potted butt was observed with carbon coating.

Ultrathin sections: Scanning transmission electron microscopy (STEM) at Hitachi High-technologies Co., on Feb. 9 and Nov. 18, 2011.

Elements or phases identified: (Mg, Si, olivine, pyroxene, aromatic carbon, etc.)

Olivine, low-Ca pyroxene, and troilite.

Nano particles were not observed on the surface of the above minerals in ultrathin sections.

Thin (~2 nm) surface layer enriched in Si and contains Na, K, and Cl as well as Mg and Fe.

Contaminant phases identified: (Al, SUS, carbon particles, etc.)

Not observed.

Sample handling: (e.g. exposed in atmosphere, embedded in resin, polished, sliced by FIB or UMT)

Embedding in epoxy resin at Ibaraki University on Feb. 2, 2011.

Ultramicrotomy at Ibaraki University on Feb. 6, 2011. Ultrathin sections on TEM grids and a potted butt were preserved in a vacuum desiccator.

Carbon coating of the potted butt at Ibaraki University on Feb. 7, 2011. The potted butt was preserved in a vacuum desiccator just after carbon coating.

State of sample pre-analysis: (e.g. N₂ hold, atmosphere, resin embedded, polished section, UTS) (please describe treatments and/or modifications for the sample you have done before your analysis)

STEM observation: ultramicrotomed sections embedded in epoxy resin.

FE-SEM observation: Carbon coated potted butt.

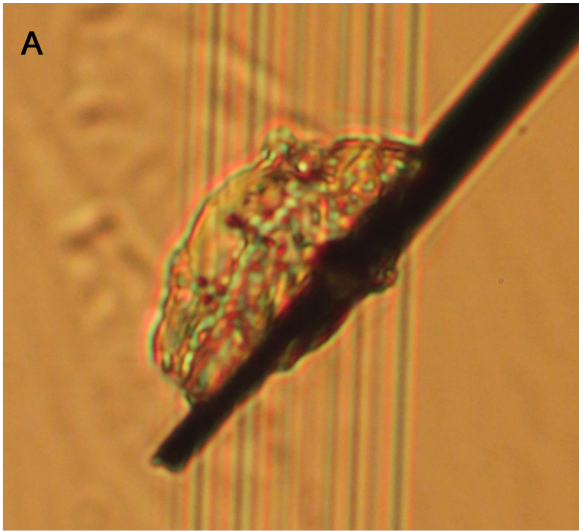
SEM observation: Carbon coated potted butt.

State of sample post-analysis:

All the ultrathin sections and the potted butt were preserved in a vacuum desiccator at Ibaraki University.

Analysis data Notes: (summary of the attached analysis data and/or images)

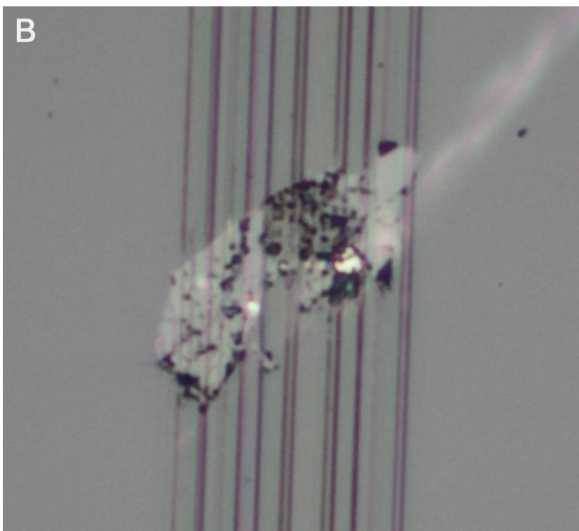
Please see the summary seat of this particle.



Sample handling history

1. Embedding in epoxy resin at Ibaraki Univ. on Feb.2, 2011
2. Ultramicrotomy at Ibaraki Univ. on Feb. 6, 2011
3. Potted butt: Carbon coating at Ibaraki Univ. on Feb. 7, 2011
4. Potted butt: SEM at Ibaraki Univ. on Feb. 7, 2011
5. Potted butt: FE-SEM at Hitachi High-tech., on Feb. 9, 2011
6. Ultrathin sections: STEM at Hitachi High-tech., on Feb. 9, and Nov. 18, 2011

All the processes were performed in atmosphere.



Samples (1) Potted butt: RA-QD02-0034, (2) Ultrathin sections: RA-QD02-0034-1 to 4

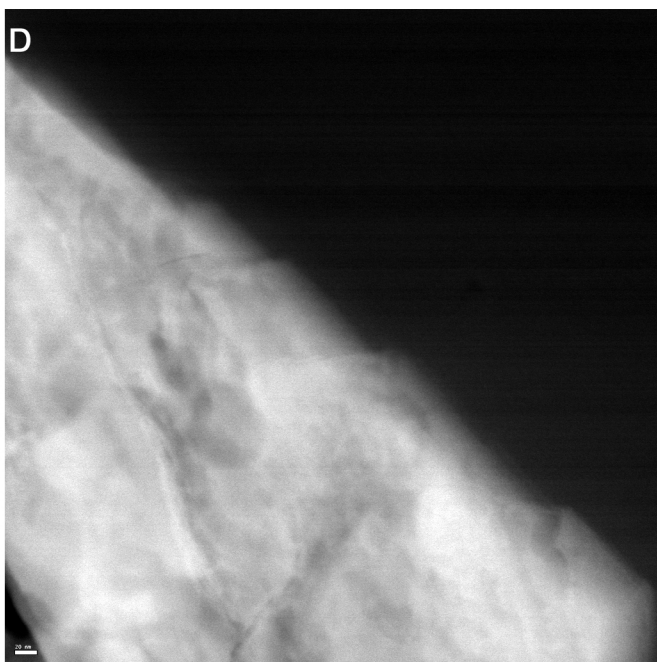
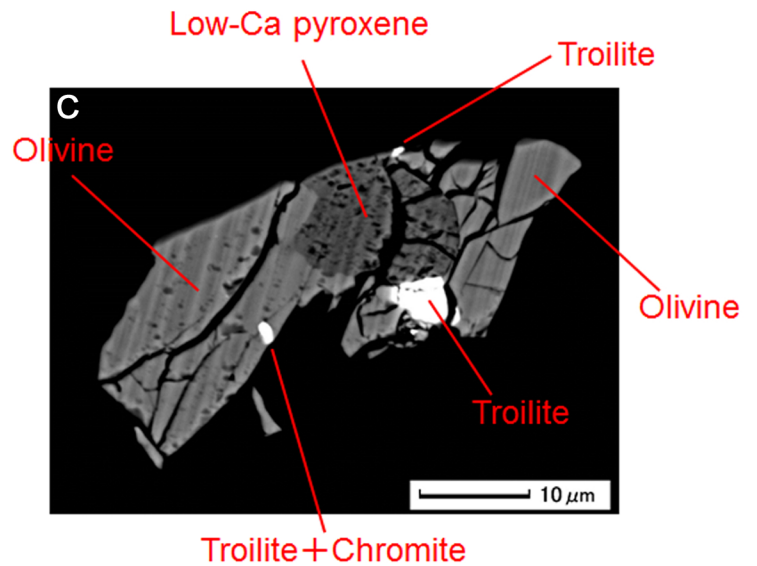


Figure caption A and B) Potted butt: Optical photomicrographs after UM (open and reflected) (2). C) BSE image of PB (4). D) HAADF-STEM image of the surfaces of olivine in RA-QD02-0034-2 (6).