

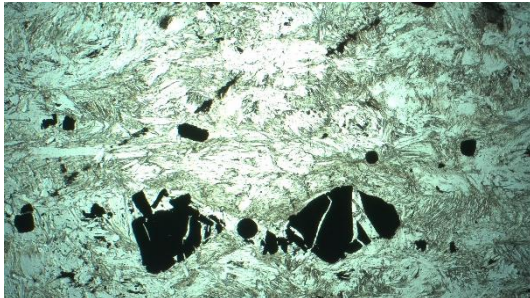
## Sample requirements for EPMA analysis at Utrecht University

We're dedicated to help you achieving the highest-possible data quality. Our previous TNA projects have shown that the sample preparation is different in each lab, so below are a couple of aspects that will help you assess whether your samples are ready for shipping to us.

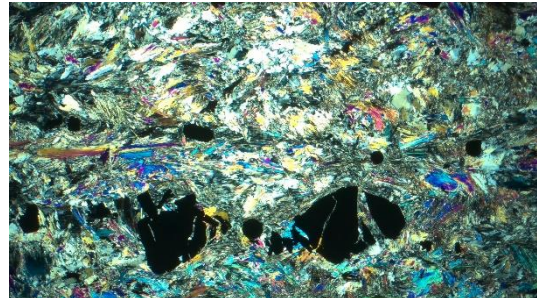
### 1. Polishing quality

Most important thing first. A well-polished sample surface is essential for obtaining high-quality quantitative analyses. Before sending your samples to our lab, please verify that the polishing quality of your samples is good. We cannot fix your samples here and I will send them back to you if the quality is insufficient.

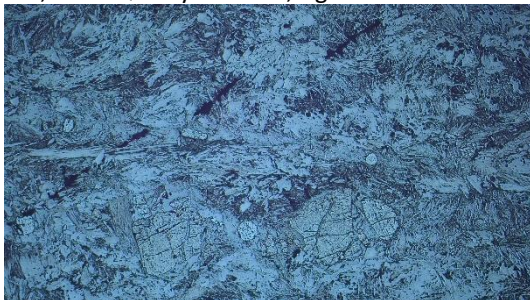
The examples below illustrate that only high-mag reflected light will show polishing quality:



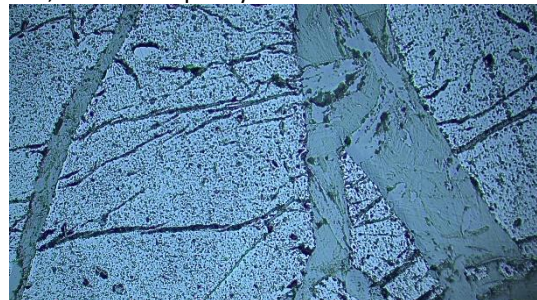
LPL, 2.5X. Quality looks ok, right?



XPL, 2.5X. Zero quality info here



Reflected, 2.5X. Silicates seem ok...



Reflected, 20X. Spinel (opaque in LPL) pitted.  
Analysis impossible

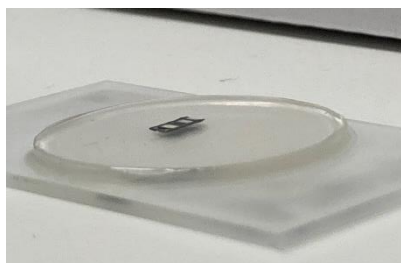
Note: for EBSD measurements, should this be part of your Excite project, the polishing quality needs to be even better, but we will take care of the last Syton polishing step, as long as they are well polished to begin with.

### 2. Sample dimensions

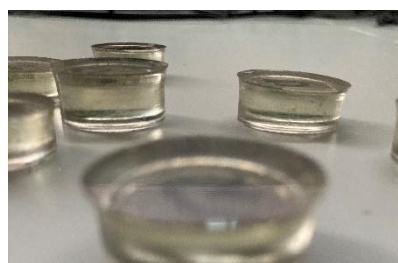
For rectangular (~27 x 46 mm) polished thin sections, we observe the largest interlab variation. Our holders have a lot of tolerance, but the max width is 29 mm, and the max height is 49 mm.

We're not restricted to measuring thin sections polished down to 30 microns. Thicker is possible too. However, the polished part of the thin section should not stick out more than 1 mm above the glass carrier slide. (see picture below)

For 1-inch round mounts, or glass slides (25 mm diameter), our holders have little tolerance. If the diameter is 26 mm, it's not going to fit. If it's 24mm, it's difficult to keep it secure in the holder. The cylinder height (or sample thickness) is not very important. Very thick (>1 cm) epoxy mounts might outgas longer and prevent achieving high vacuum.



Sample sticking out above glass carrier slide. More than 1 mm is too much bc loss of optical focus.



For grain mounts, the diameter should be 25 +/- 0.3 mm. In this example, the polished surface diameter is too big and doesn't fit. A cylinder with a rounded-inward top isn't good either...

### 3. Conductive coating

We will deposit a conductive carbon coating in our lab, prior to analysis. Please send us cleaned samples. If your samples were carbon (or any other material) coated before, it's best to have that removed.

### Sample documentation

If you would like us to measure specific spots on specific grains in specific parts of your samples, please provide detailed documentation (photomicrographs, BSE images). Include a simple naming system that doesn't require a ton of typing (e.g. E1\_1\_OL1-c). We're scanning your samples when they're in the microprobe holder, prior to loading them into the instrument. That will help sample navigation tremendously.

### Shipping info

Excite will cover your shipping expenses. Please send the samples by courier (Fedex, UPS, etc.) to the following address:

Dr. Eric Hellebrand

Utrecht University

Winthontlaan 30C [this is the street address where UU mail is collected prior to distribution]

3526 KV [this is the zipcode]

Utrecht [this is the city]

The Netherlands

Geolab, Room 1.04, VMB-building [important information to get the shipment to my office]