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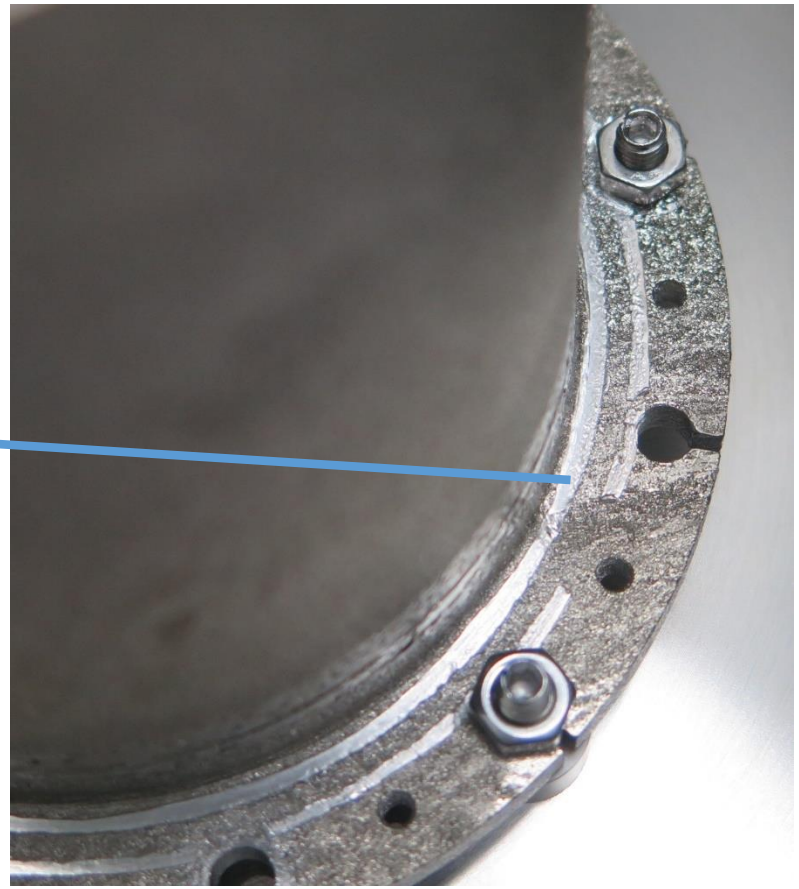
# ARIES WP 15.2 progress

ARIES 17th WP15 meeting - Februrary 25th, 2021

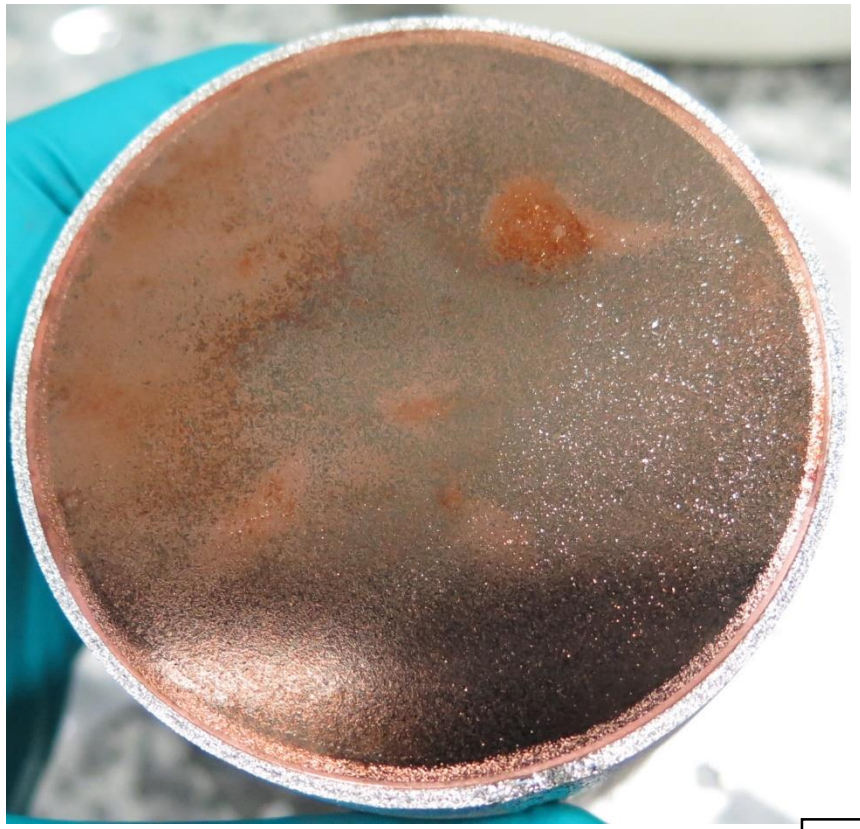
# QPR B4: Initial

Indium residuals, quantity was higher than last time.
HCl acid removal.



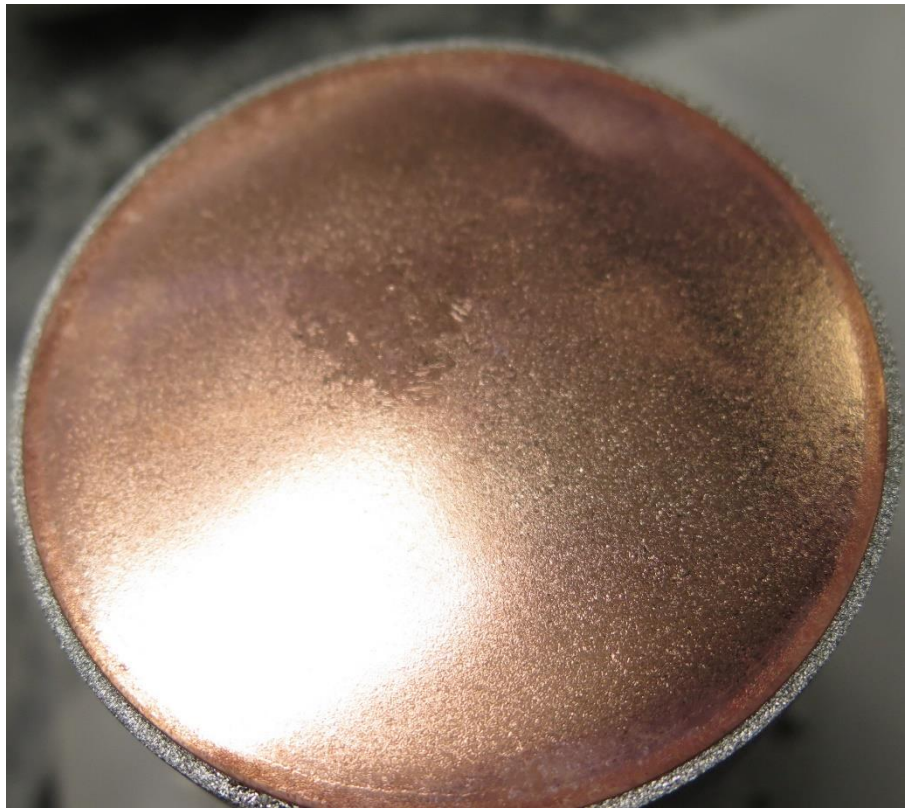
**ARIES-QPR-HZB-B4 Files/2021-02-04-INFN- Initial, Stripping, Polishing/** folder on cernbox

# QPR B4: Initial



First 3 h

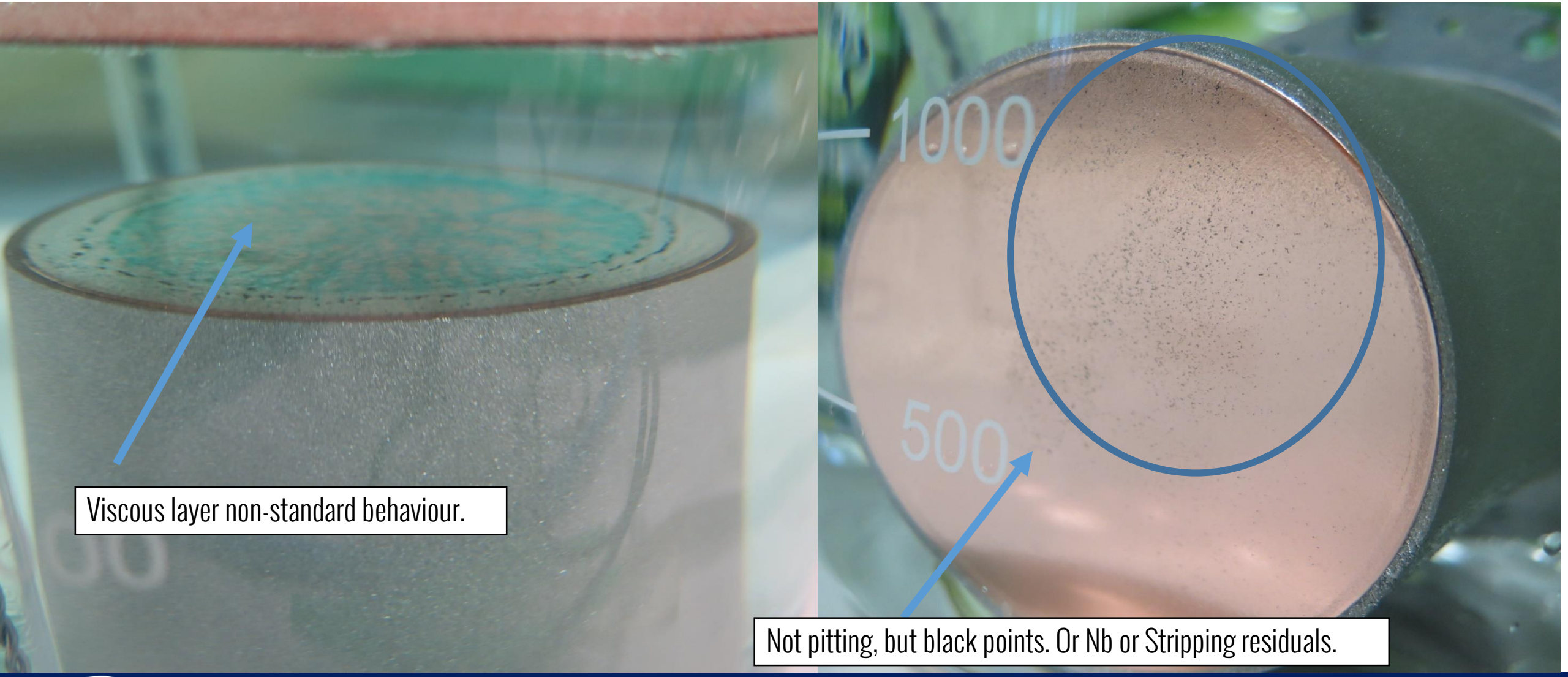
Same 3+3h time as previously



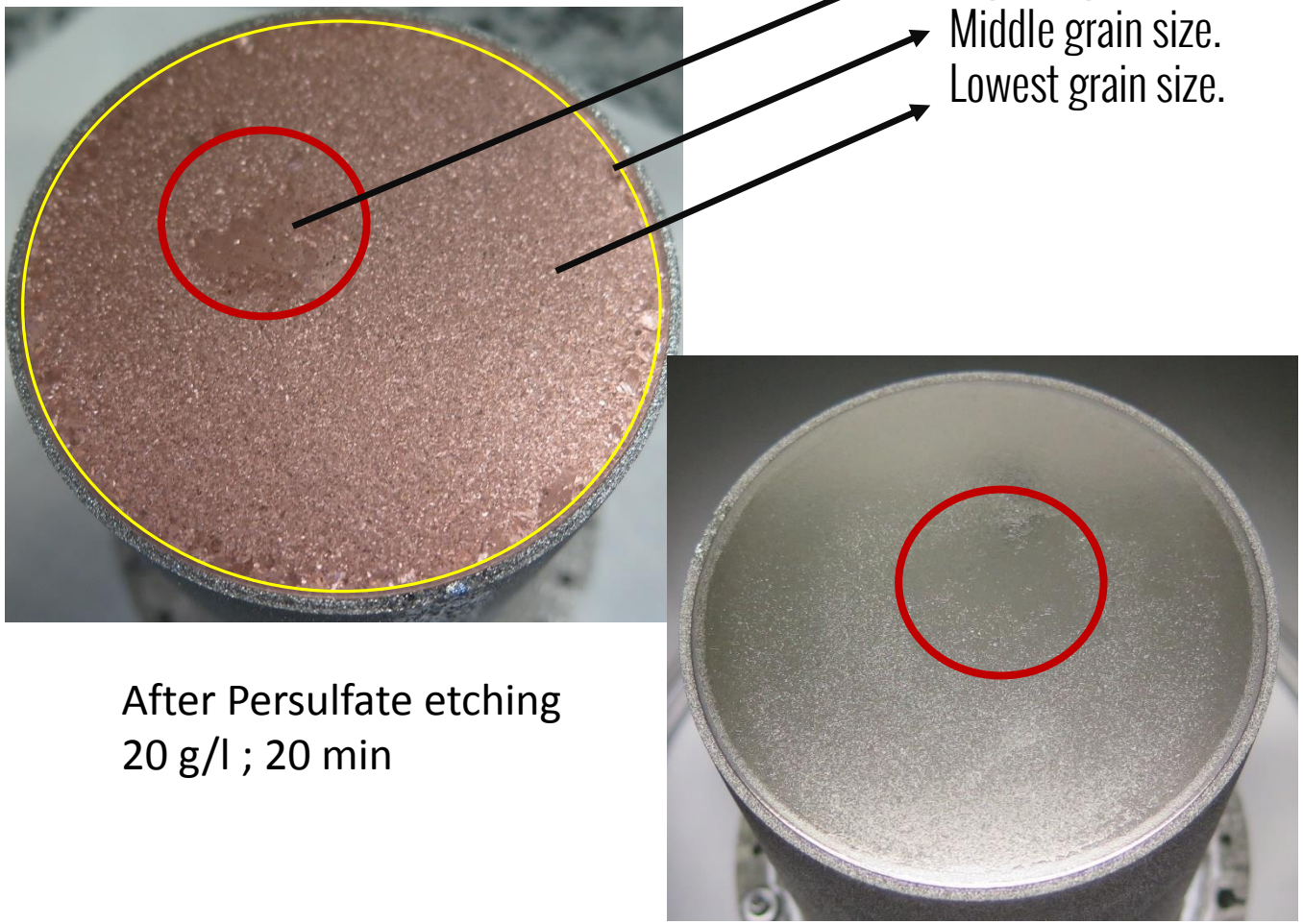
Second 3 h

**ARIES-QPR-HZB-B4 Files/2021-02-04-INFN- Initial, Stripping, Polishing/** folder on cernbox

# QPR B4: Electropolishing



# QPR B4 : Etching

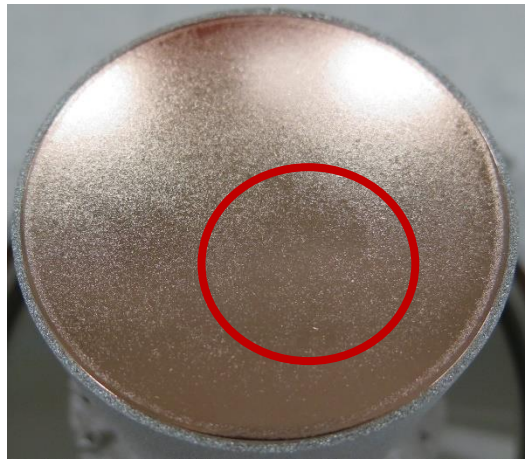



After Persulfate etching
20 g/l ; 20 min

Due to the points it was decided to do a fast etching in ammonium persulfate. These steps is usually done to remove possible redeposition of Cu after striping, and to highlight Nb if present. In the case of point, was not useful. But, allowed us to see the difference of grain size distribution.

After a repetition of all protocol:

- Stripping 2 h
- Etching
- Fast EP



# QPR B4: Summary.

| Data | Process | Details | Comments |
|---|---|---|---|
| 01.02.2021 | Arrival, Indium removal | Hydrochloric acid removal. 2 h, after Indium was pealed with plastic stick. | Longer than previous times, a lot of In collected. |
| 02.02.2021 | Stripping | 3+3=6 h of treatment. | Same time as last time. |
| 02.02.2021 | Fast EP | 10 min, 4 um. 2,4 V. | After cleaning visible black dots (possible Nb) |
| 03.02.2021 | Persulfate cleaning | To remove possible redeposited copper (after stripping) or residuals and highlight Nb (if there is Nb) | After 20 min in 20 g/l visible grains. Big grain cluster in the middle, middle size grains close to edge, and smaller size grains across all other surface. This explains strange view after and during EP in previous treatments in 2020. No visible Nb. |
| 03.02.2021 | Stripping | 2 h | - |
| 03.02.2021 | Persulfate cleaning | 20 min | No visible Nb, same grain sizes distribution. |
| 03.02.2021 | Fast EP | 9 min, 5 um. | No black dots, pitting (obviously not removed) |
| 03.02.2021 | Passivation, HPR, packaging. | Vacuum, Ar flux to 1,1 atm. Double vacuum bags. | |
| 04.02.2021 | Sent to Siegen | | |

# Small Samples and QPR coating

- Ready for QPR Nb thick film coating
- $Nb_3Sn$ 2 mm strip samples by dipping prepared for IEE → waiting for cutting 2x2
- Nb bulk 2x2 samples ready for IEE as reference