

1 Fast Impedance Measurement (FIPT) []

Notes:

- When handling electrolyte always wear goggles
- In total 3 measurements for the A side and 3 measurements for the B side are carried out
- Up to 3 separators can be cut at once
- Use generic 250um glass fiber separator

1.1 Preparation []

Pre-Checklist:

- Take coated sample to the FIPT workstation
- Wear gloves and goggles
- Clean FIPT workstation with isopropanol
- Check age of electrolyte
- Prepare FIPT workstation as in Fig. 1 and Fig. 2 (napkin, electrodes, sample holders, trash beaker, pipette, pipette tips, drill)
- Check drill clutch setting is 7**
- Check holders are functional (screws grip in the plastic)
- Remove dust from the sample holders with compressed air

Procedure: Prepare separators

1. Cut the circular separator material (no more than 3 at a time) with the triangle ruler and yellow cutting tool into **21mm wide** stripes (see Fig. 3)
2. Cut the stripes into smaller stripes (21mm × 35mm)
3. Check stripes for dirt → throw away dirty stripes

1.2 Assemble FIPT cell []

Procedure:

1. Cut the coated sample in the middle with the yellow cutting tool (see Fig. 4)
2. Cut out 2 electrode stripes (**20mm wide**)from the coated sample with the black cutting tool
3. Place first electrode stripe into the sample holder with **A side up** (see Fig. 5)
4. Place separator on top of the first stripe (see Fig. 6)
5. Drop 300 microliter electrolyte on the separator with the microliter pipette (see Fig. 7)
6. Place second electrode stripe on top of the separator with **A side down**
7. Place plastic cross on top of the second electrode stripe (one corner is round, see Fig. 8)
8. Hook in plastic bar, tighten screws in the two corners until they're flush with the bottom (see Fig. 9)
9. Screw in the middle screw until the clutch of the drill triggers
10. Attach measurement wires to the sample (see Fig. ??)

1.3 Carry out FIPT measurement []

Procedure:

1. Perform impedance measurement between 1Hz - 50kHz
2. Analyze data according to Landesfeind2016 (See literature folder)



Figure 1: FIPT workstation setup



Figure 2: Close up of FIPT workstation setup with two FIPT cells (bottom right) and double blade 20mm cutting tool (left side)

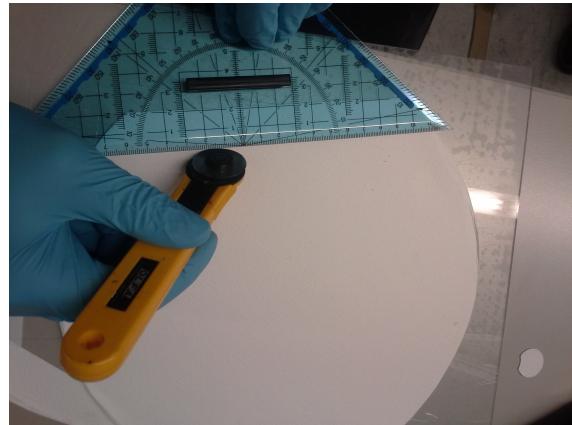


Figure 3: Preparing the separators

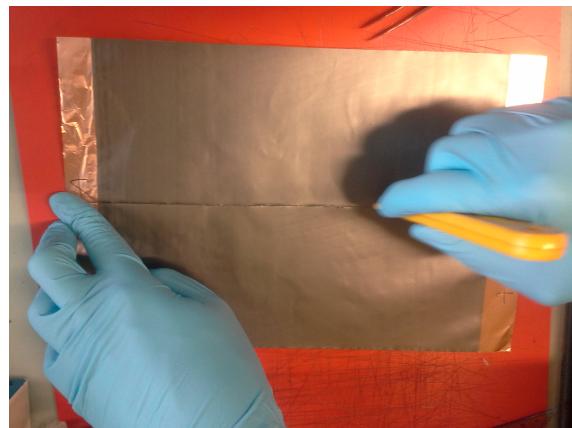


Figure 4: Cut the coated sample in the middle



Figure 5: Put first stripe in sample holder



Figure 6: Put separator in sample holder

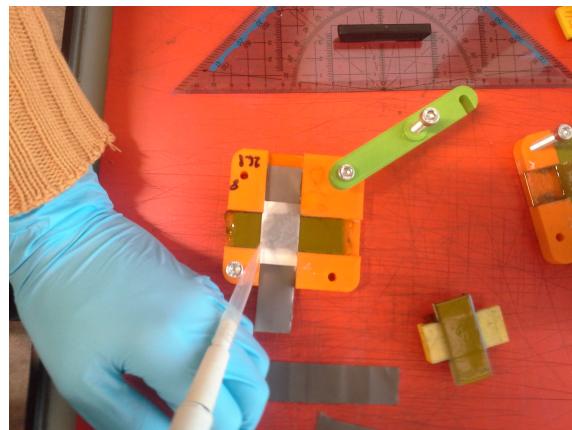


Figure 7: Drop electrolyte on separator



Figure 8: Put separator in sample holder

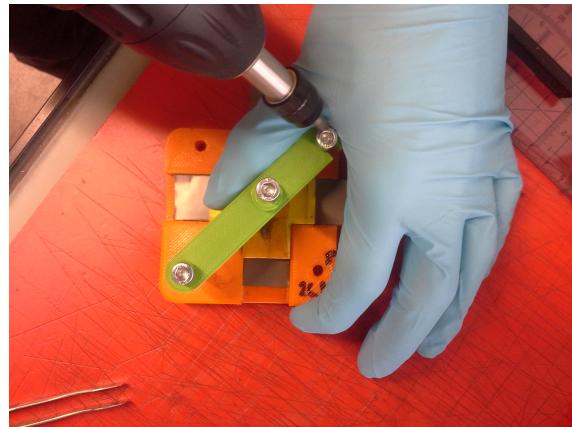


Figure 9: Fix plastic bar in place



Figure 10: Attach measurement wires