

Preproduction status update



November shipment missing additional follow up (all complete!):

- **(8/8) CuW** Full to TITF + **(6/6) CuW** Full to IHEP
- (0→16/16) Ti-Full [**Full-glue**]

December shipment status:

- **3/3 CuW-Full** [Full glue]
- 3/3 Ti-Full [Full glue]
- **9/76 → 37/76 CuW-Full** [New plates are using Full-glue]
- 1/44 → 9/44 Ti-Full [Full glue]

Completed 36 additional plates this week!

Slightly new procedure and new bottleneck

- Single plate op.*
- QC Measurements [8-12 min/plate]
-

Batch op.
(~8-10 per batch)

- **No alignment step! (1hr → 0min)**
 - Glue preparation (10min/batch)
 - **Glue application (roll) + Kapton gluing**
(3min/plate)
 - Leave for initial cure (~1 hr/ 0 duty cycle task)
-

Single plate op.

- **Glue overflow cleaning (~15 min/plate)**
- Full cure (12-20 hr/ 0 duty cycle task)
- Top glue tape (3 min/plate)

Glue cleaning – increased time

Waldemar pointed out we should make sure the alignment notches are as free of glue as possible. This process takes time and is very hands-on.

- New tools make it easier, but not much faster
- Trivially parallelizable:
 - *Can we get a second microscope?*
- Is this necessary? Is this:
 - Something that **MACs** care about?
 - Something that **cassette assembly** cares about?



Before

Thin plastic pencil used for cleaning



After

Current (pre)-production schedule



Estimating around 8 plates per day (amount varies by available time)

- **10:00**
 - Inspect and final measurement of lamination from yesterday
 - Miscellaneous tasks (logistics organisation)
- **11:00**
 - Glue preparation and lamination
- **12:00**
 - *Lunch break*
- **13:00**
 - Glue clean up and intermeidate inspection
- **15:00**
 - Daily clean up (typically short)

More plates is not practical given space and time constrain
Inflexible time constrained by epoxy pot time

A diagram consisting of a long red double-headed vertical arrow spanning from the 11:00 slot to the 13:00 slot. To its right, a shorter blue double-headed vertical arrow spans from the top of the red arrow to the top of the 11:00 slot.

Projected production schedule (4h blob)



Start (0hr)	Batch 1 glue prep.	
	Batch 1 glue disp.	Batch 1 alignment
1hr	Batch 2 glue prep.	
	Batch 2 glue disp.	Batch 2 alignment
2hr		
	Batch 1 clean (A).	Batch 1 clean (B).
3hr		
	Batch 2 clean (A)	Batch 2 clean (B)
4hr		

- QC measurements/indexing, post-lamination measurements designated to separate station
- Because of epoxy pot-time restrictions, this schedule must be a **continuous 4 hr segment**
 - **8:00-12:00 + 13:00-17:00**
Can yield ~30-40 plates a day.

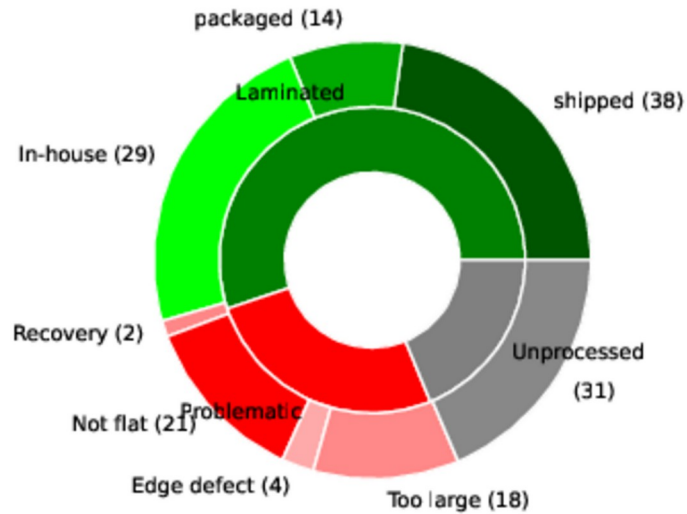
Discussion the full-glue quality



Since last meeting we have laminated **38** new plates

- 1 had excess glue build up on 1 side
- 1 was red-grade flatness before glue application (probably shouldn't have been laminated)
- 6 had flatness grade lower from **green** to **orange**
 - This is actually *better* than what we had for glue tape method (nearly 60% orange grade after lamination)!

Continue with full glue for the rest of December shipments

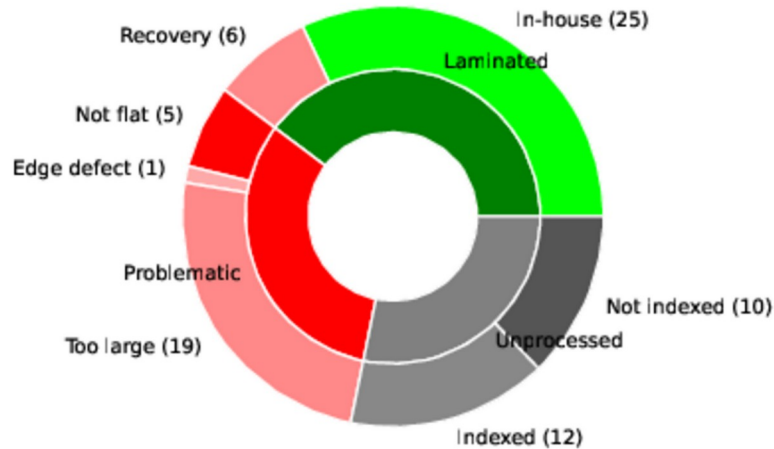


CuW-Full (Total 165)

- **Laminated (shipped/shipable): 89**
- **Unprocessed: 31**
- **Nov.+Dec. Total: 122**
 - Deficiency: **2**

Potential recoveries:

- Recovery: laminated but failed inspection (can attempt to re-laminate)
- Edge defect: machineable recovery (?)
- Too large: Estimate maybe pessimistic



Ti-Full (Total 75)

- **Laminated (shipped/shipable): 25**
- **Unprocessed: 22**
- **Nov.+Dec. Total: 60**
 - Deficiency: **13**

Potential recoveries:

- Recovery: laminated but failed inspection (can attempt to re-laminate after cleaning)
- Edge defect: machineable recovery (?)
- Too large: Estimate maybe pessimistic ?

Pretty significant deficiency here... We might need more material

I will be visiting the NTU MAC during the holidays!

- You can send me questions that you want to ask directly to MAC operators:
 - What defects do they notice but we did not
 - What defects did we document but they did not care.
 - QoL improvements we can provide in our shipping/packaging process.
 - Others?
- I will need to clarify which questions are more suitable for MAC, and which might be better answered by cassette assembly.