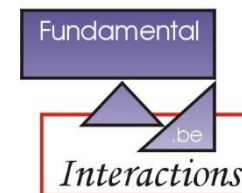


# Update on PVT cube machining

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25/04/2014

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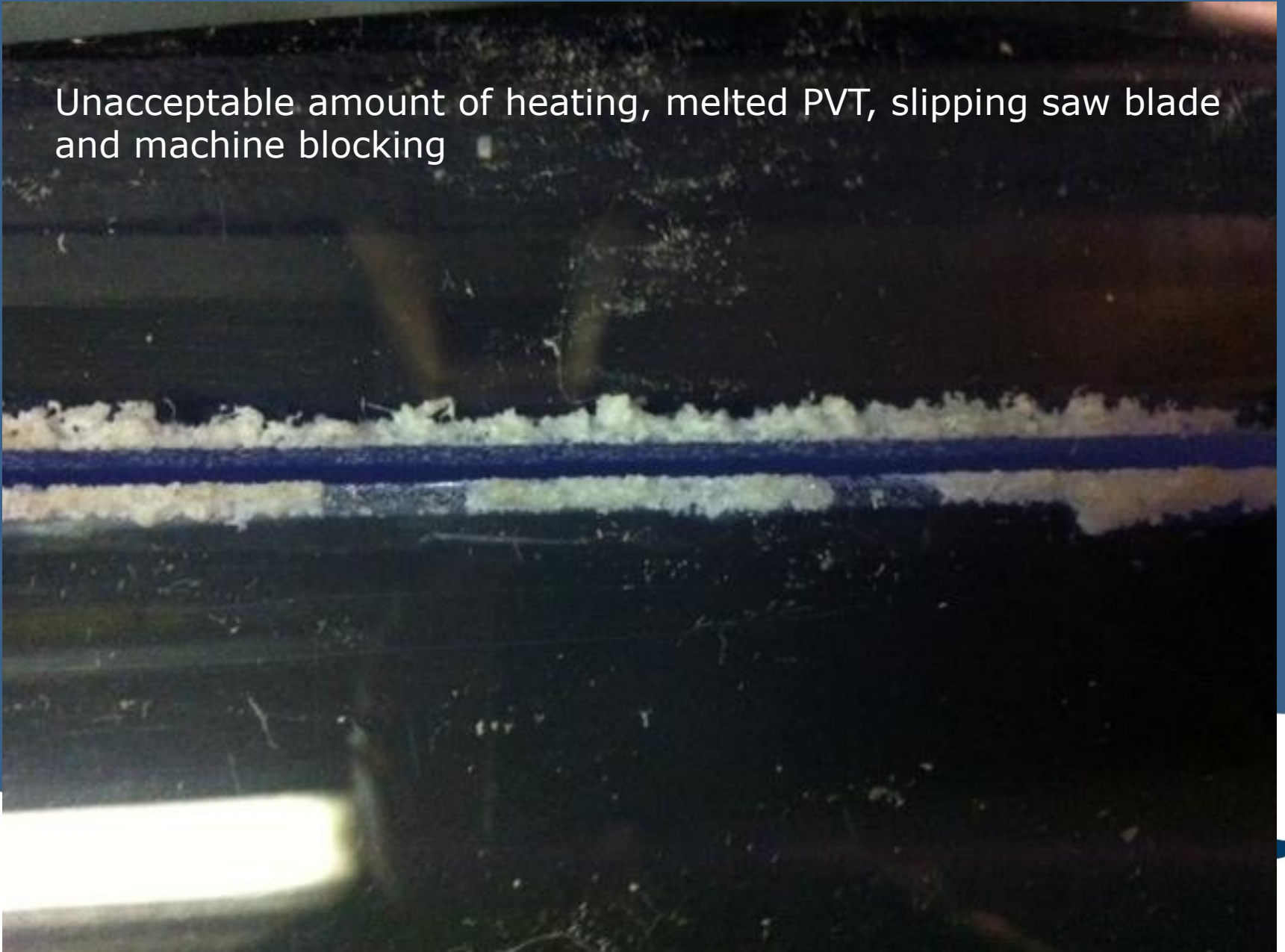
- Saw test done on Fri 11/4
- New dedicated saw blade for “soft” materials
- Sawing done at 1200 rpm (slowest speed possible)
- Not possible to cool with water
- Material melts quickly and blocks progress of the slab through machine
- Consider sawing with other tools (bandsaw or water)

# Initial Sawing Hardware <sup>3</sup>



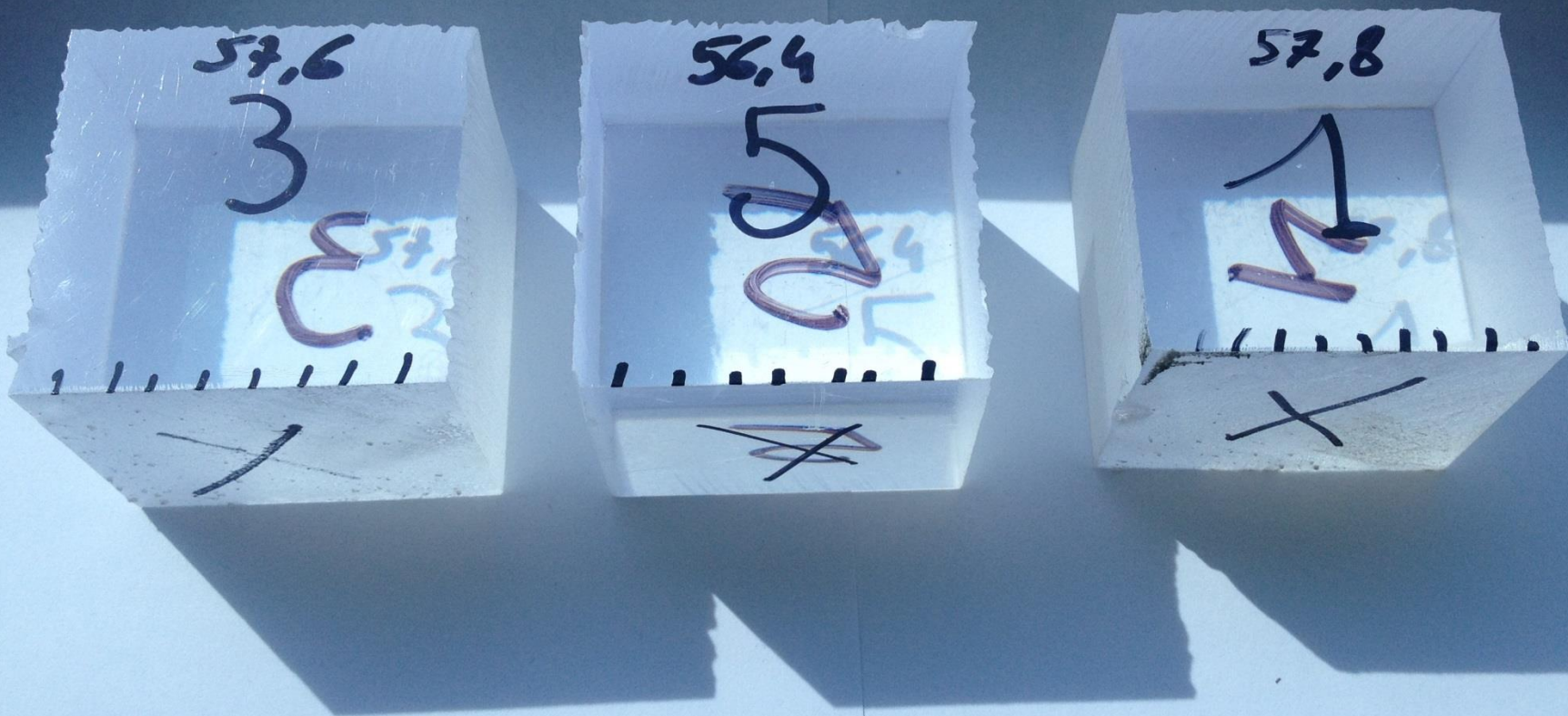
# PVT after circle sawing <sup>4</sup>

Unacceptable amount of heating, melted PVT, slipping saw blade and machine blocking



- Visited water cutting firm on 23/4/2013
- Impressive machinery, see example on <https://www.youtube.com/watch?v=4tQekc504I#t=11>
- Several qualities of finish depending on water pressure and cutting speed
- Current quotes:
  - 0.89 Eur/cube excl VAT (cube #5 on next slide)
  - 0.98 Eur/cube excl VAT (cube #3 on next slide)
  - 1.30 Eur/cube excl VAT (cube #1 on next slide)
- Maximum yield = 170 cubes/plate
- 15 plates = 2550 cubes

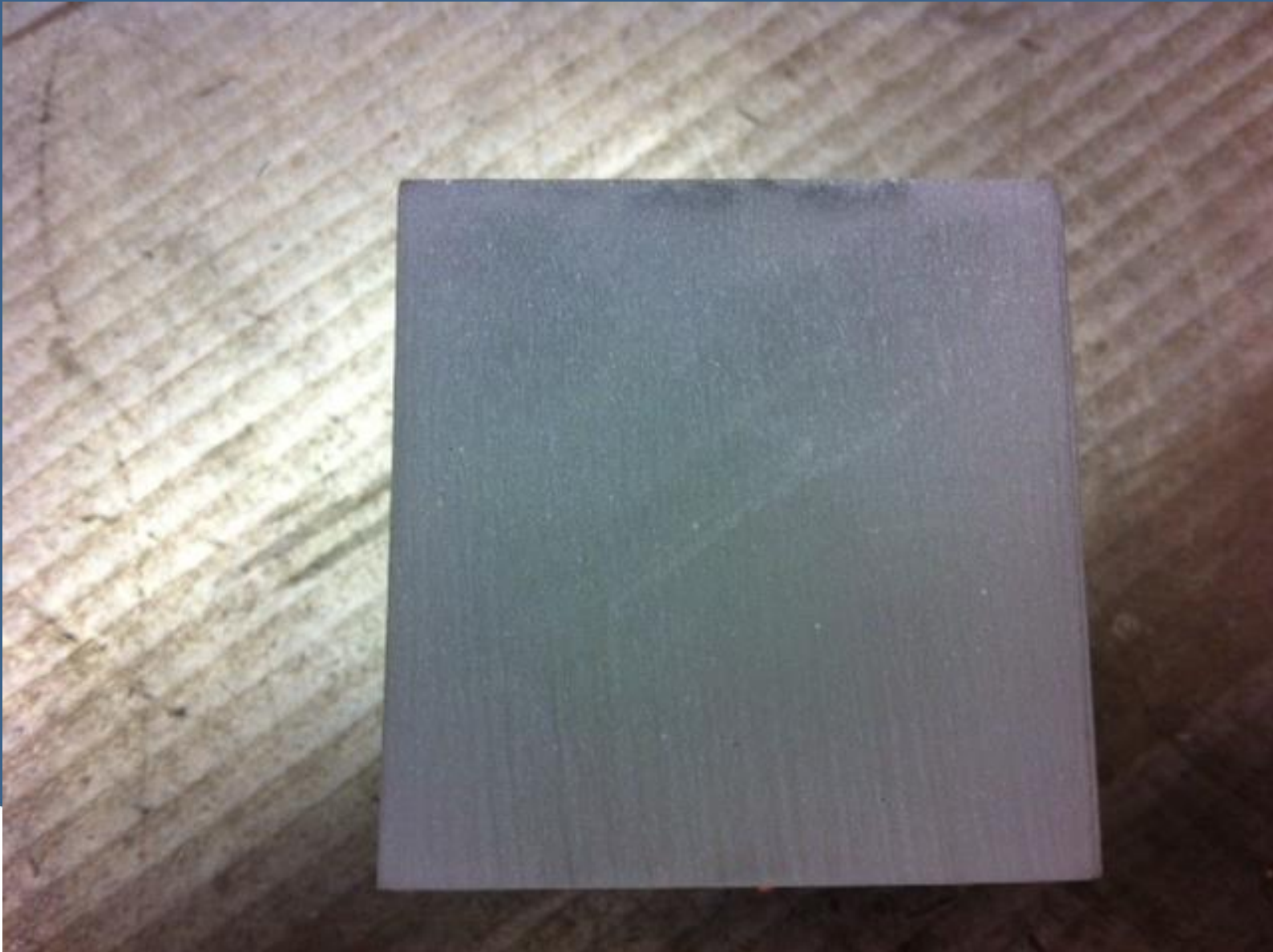
All cubes cut according to 58mm spec  
8mm margin needed for cheapest cuts due to runouts, wobbles etc.



# Best possible finish

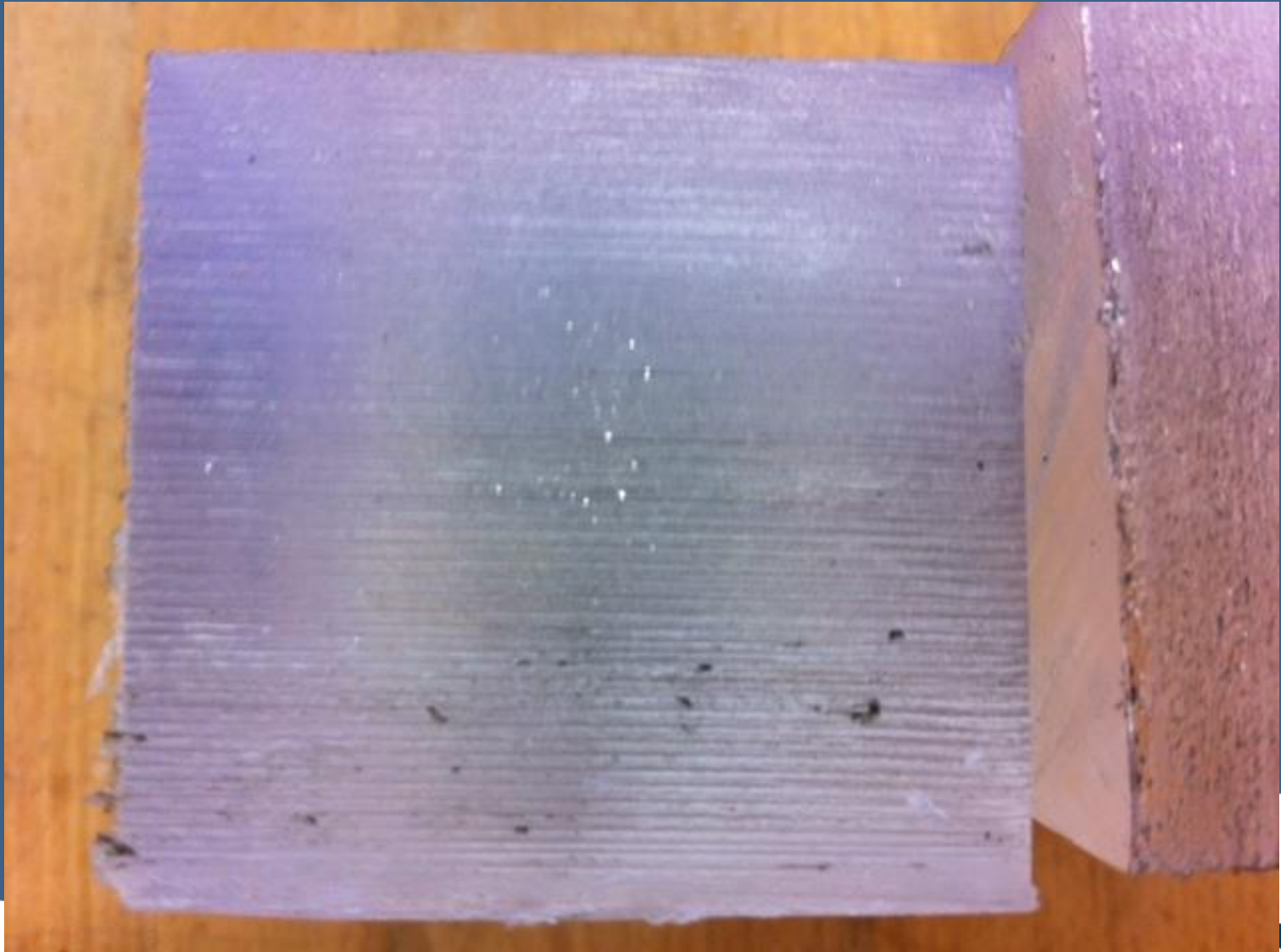
7

0.3-0.1 mm precision: Expensive price tag of 3-7 euro/cube



- In parallel: new test in Antwerpen university workshop
- Band saw at 56 ft/min
- Air cooled (via own motor)
- Not possible to cool with water
- Band saw blade : 8Tpi
- Grease applied to saw for lubrication
- Comparable results to water cutting, but time consuming and safety issues





# Questions/decisions <sup>10</sup>

- <3000 Eur cutting cost is affordable for SM1
- Do we invest it in fine tuning industrial process for mass production in 2015 OR do we invest in local training, hardware of our own workshop ?
- Industrial cutting could start begin May and would take 1 week
- Similar time scale in workshop, but would use manpower that could do CNC milling otherwise
- ELJEN slabs arrive in <2 weeks
- Should we order one more spare slab?