| **7/24/2023** |  | | | |  |
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| Objective | Planning on getting one more trial at 50pa and then doing at least one more at 70pa. | | | |  |
| Accomplishment/  Reflection |  | | | |  |
| Cold stage size | | 51 mm | | |  |
| Cold stage height | | +8 mm | | |  |
| Distance of detector from stage  (5-10mm) | | 5 mm | | |  |
| Probe current (70-90) | | 70 | | |  |
| Accelerating voltage (Vacc) (12-17kV) | | 12 k/v | | |  |
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| Time (Since start of trial) | Action/observation | Temperature | Pressure (25-150 Pa, 40 most common) | Working Distance  (3 factors: focus, mag, stage height)  Error message if not from 9-11 mm | Magnifi-  cation |
|  | Starting our first trial of the day. |  |  |  |  |
| 0:00 | *Case 1.0*: Crystal located in bottom left quadrant. Prismatic side facing up. **Note: crystal was still growing during imaging.** | -37 | 50 | 8.6 | x95 |
| 2:30 | *Case 1.1:* Linear roughness visible on the central prismatic facet. Weird roughness on the right prismatic/pyramidal facets. **Note: crystal was still growing during imaging.** | -36 | 50 |  | x85 |
| 4:52 | *Case 1.2:* Roughness taking shape on the beveled surface. Crystal seems to be growing a second basal facet. | -34.5 | 50 |  | x75 |
| 6:42 | *Case 1.3:* Crystal seems to be flattening as it develops. Growth has stopped at this point. | -32.6 | 50 |  |  |
| 8:41 | *Case 1.4:* Hints of ablation at | -30.7 |  |  |  |
| 10:58 | *Case 1.5:* Definitive ablation on the surface. | -29.0 | 60 |  |  |
| 13:20 | *Case 1.6:* Lowering the temperature to maintain ablation conditions for imaging. Ablation roughness that we see on the prismatic facet has much wider grooves than growth roughness we witnessed earlier. | -30.7 | 50 |  |  |
| 16:05 | *Case 1.7:* Lowering the temperature one more degree to maintain crystal size. Capturing another ablation image. **Note: Cases 1.6 and 1.7 will be great to use for analysis of ablation roughness.** | -31.7 | 50 |  |  |
| 18:24 | *Case 1.8*: Raising the temperature back to subsaturation levels to shrink. Capturing the final image. A great first run through for the day! |  |  |  |  |
|  | Restarting the process. Attempting our first trial at 70pa. |  |  |  |  |
| 0:00 | *Case 1.0:* Crystal located in top left quadrant. Growing rapidly. Prismatic facet facing up. Central basal, pyramidal, and prismatic facets look promising for calibration. **Note: crystal was still growing during imaging.** | -36 | 70 | 8.3 | x90 |
| 2:12 | *Case 1.1:* Visible linear roughness on gap between central and bottom prismatic facets. **Note: crystal was still growing during imaging.** | -34.5 | 70 | 8.3 | x80 |
| 4:07 | *Case 1.2:* Detector B is awful for this crystal. Do not approach. C is also not great. Crystal is huge. We’re talking massive and still growing. **Note: crystal was still growing during imaging.** | -32.6 | 70 |  |  |
| 6:28 | *Case 1.3:* Not much roughness on the prismatic facets, which is a bit surprising. We would definitely expect some visible growth roughness at this point, but only a little bit of roughness towards the top of the central prismatic facet. | -30.6 | 70 |  | x60 |
| 8:25 | *Case 1.4:* Signs of early ablation. Not much roughness on the central prismatic facet, but definitely some on the bottom one. | -28 | 70 |  |  |
| 10:30 | *Case 1.5:* More signs of ablation, especially on lower parts of the crystal. | -26.9 | 80 |  |  |
| 14:05 | *Case 1.6:* Lowering the temperature to prevent shrinking. Ablation roughness is very present on the prismatic facets. | -30 | 60 | 8.6 | x75 |
|  | Ending this trial and restarting. Doing one more trial at 70pa then calling it for the day. |  |  |  |  |
| 0:00 | *Case 2.0:* Crystal located in the top central area. Slanted orientation, which gives a great view of basal, pyramidal, and multiple prismatic facets. **Note: crystal was still growing during imaging.** | -37 | 70 | 8.1 | x70 |
| 2:20 | *Case 2.1:* **Note: crystal was still growing during imaging.** | -36.3 | 70 |  | x60 |
| 4:16 | *Case 2.2:* Growth roughness starting to become visible on the prismatic facets, but only slightly. Basal has shrunk significantly. | -34.5 | 70 |  |  |
| 6:20 | *Case 2.3:* Growth roughness is quite visible on the bottom prismatic facet now, especially with Detector C. | -32.6 | 70 |  |  |
| 8:40 | *Case 2.4:* Recapturing crystal with same temperature for better focus on prismatic facet roughness. | -32.5 | 70 |  |  |
| 10:20 | *Case 2.5:* Roughness grooves are starting to space out a little bit. Signs of early ablation. | -30.5 | 70 |  |  |
| 12:30 | *Case 2.6:* Beveled surface seems smoother at this temperature than in other crystals at lower pressure settings. | -28.7 | 80 |  |  |
| 14:40 | *Case 2.7:* Early signs of ablation as the central prismatic facet is chipping away at the base. | -27 |  |  |  |
| 16:50 | *Case 2.8:* Lowered temperature to capture some more roughness images without shrinking the crystal. Much more sporadic roughness on prismatic facets, and some bleeding into pyramidal facets. Beveled surface still seems fairly smooth. | -30.3 |  |  |  |
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