POLISHING SAMPLES ON PM5

POLISHING SAMPLES ON THE LOGITECH WG2: USER GUIDE

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This user guide will help thin section technicians polish their samples to the target thickness of 30 microns. This is the final stage in the thin section process. For more information refer to the Logitech Thin Rock Section Production manual, available in the Thin Section Lab both on a Logitech thumb drive in the bookcase and computer under the "Manual" folder on the desktop. Or, refer to Operation and Maintenance of the LP50 Lapping and Polishing Machine manual, located in the black binder in the Thin Section Lab bookcase labeled "LP50, PM5 and Associated Equipment".

LOGITECH WG2 SET UP

1. Press the **Main** button under the joystick.
2. Press the middle of the joystick for ok (Fig. 1).

Figure 1

3. Checking system (Fig. 2) screen will appear. Press ok to continue.

Figure 2

4. Process Screen and **Machine Setup** (Fig. 3) will appear.

Figure 3

5. Select **Process Screen** and press ok.

6. On the **Confirm Action** (Fig. 4) screen move the joystick down and press **Ok**.

Figure 4

7. Press ok on the **Please Set Position** (Fig. 5) screen.

Figure 5

8. The **Operations** (Fig. 6) screen will appear.

Figure 6

9. Place the abrasive drum (Fig. 7) on the top of the WG2.

    a. The abrasive is a mix of one vial of diamond powder (3 micron, 25 cts.) and half of the drum filled with ethane diol.

10. Check polishing pad (Fig. 7) for wear. The polishing pad is a Kempad No. 150022.

    a. The polishing pad should be replaced after 50 hours of use or if it is damaged with rips or tears.
    b. If it needs replacing. Remove all weights from the WG2. Pull out on the pin on the top back side and lift (Fig. 7).

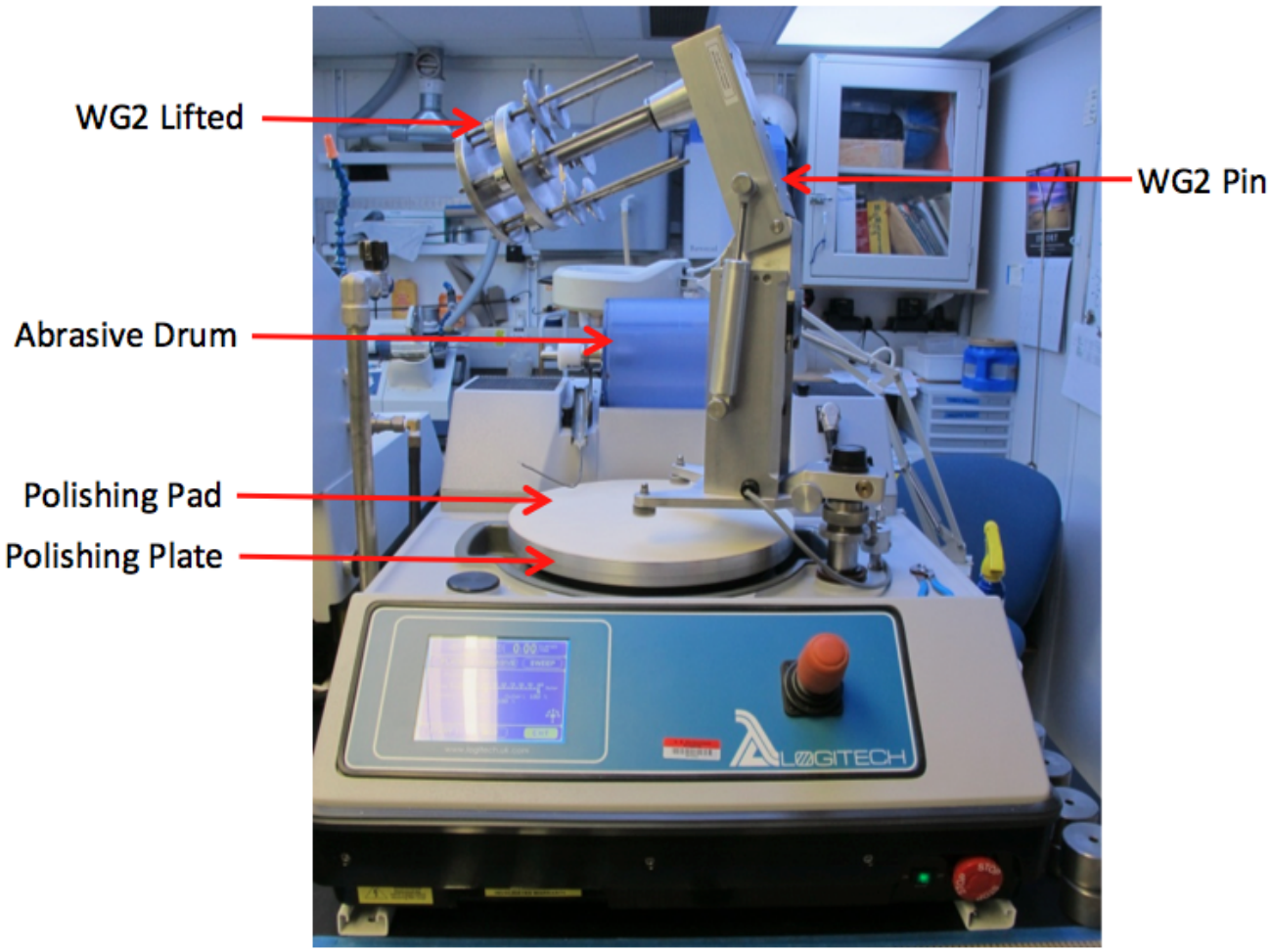

Figure 7

a. Lift the polishing plate and pull it out from under the WG2.

b. Place the polishing plate on the padded floor and peel off the old polishing pad.

c. Clean the polishing plate with a kimwipe and isopropyl alcohol.

d. Begin to remove the backing of the polishing pad. Do not pull it all the way off.

e. Line up the edges of the polishing pad and polishing plate. Press the pad down by sweeping your hand back and forth across it to prevent from bubbles forming under it (Fig. 8).

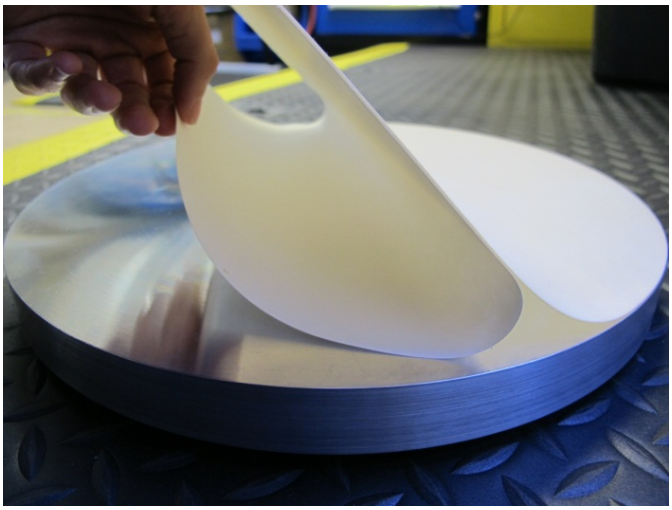

Figure 8

f. Slowly, remove the backing and continue sweeping your hand.

g. Fold the backing in quarters with the smooth side on the outside. Press on it and move it around the pad. This will help secure the pad and remove any bubbles (Fig. 9).

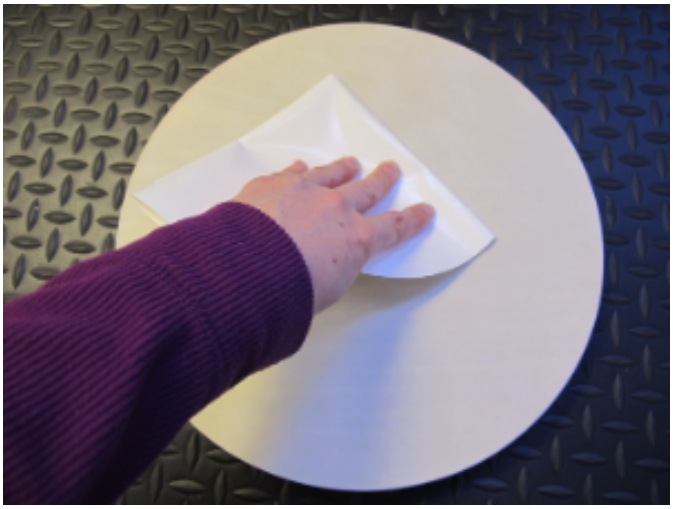

Figure 9

h. Replace the polishing plate and lower the WG2.

POLISHING SAMPLES

1. Wet the polishing pad by spraying it down with ethane dial.
2. Spray a small amount of ethane dial on the slide holders and place the samples frosted side up onto the holders (Fig. 10).

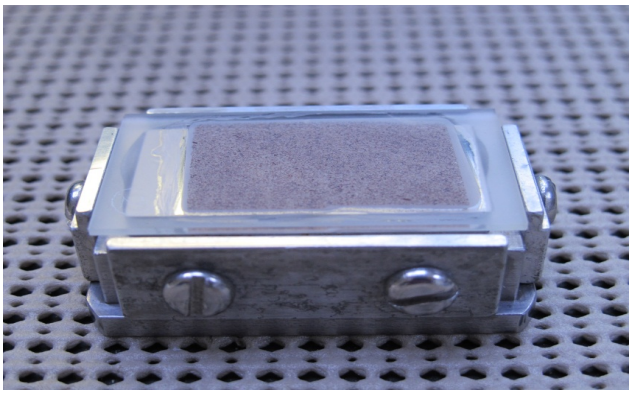

Figure 10

3. Place sample face down on the polishing pad under a carousel post (Fig. 11).

4. Lower the post down by rotating it counter clockwise and gently setting it down in the middle hole of the slide holder (Fig. 11).

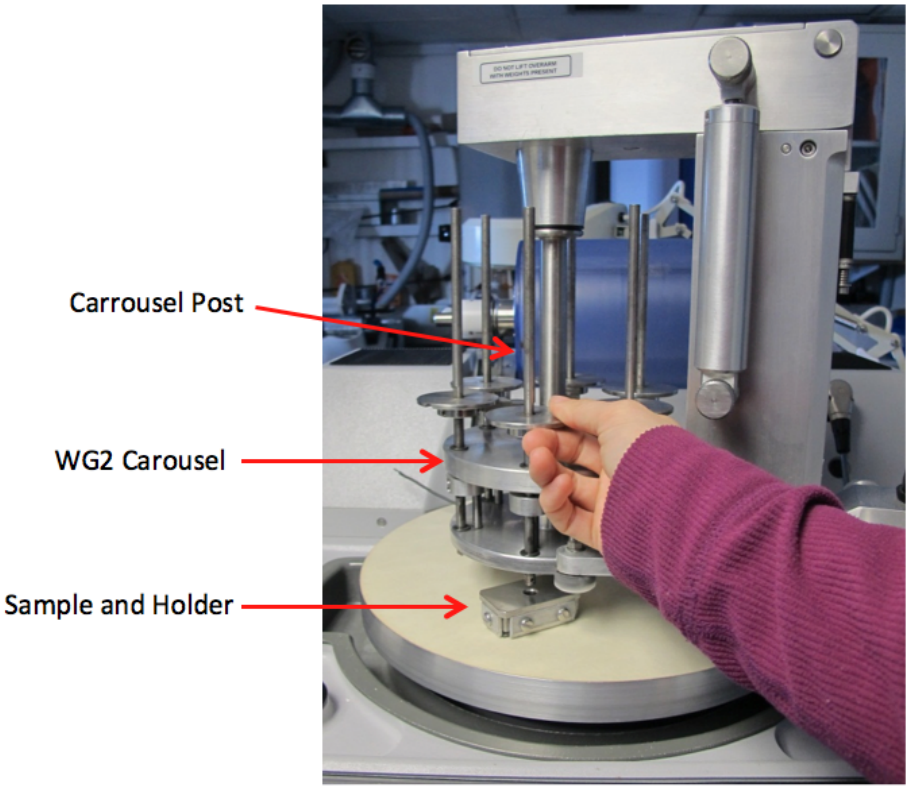

Figure 11

a. If all six carousel posts need to be used it can be rotated around by moving the joystick to the left on the **Operations** screen and selecting **WG2** (Fig. 6).

Figure 12

i. While on the **WG2** (Fig. 12) screen, select **Wg2** and change it from "**off**" to "**on**".
ii. Then select the **Wg2 Rate** and increase it to 70%.
iii. On the **WG2** (Fig. 12) screen move the joystick down to **Override** and change it from an "**X"** to a "**Check**" just until it rotates the carousel enough so you can access the other side. Then change override back to an "**X**".

5. Add two weights to each post that has a sample under it.

6. Select **Abrasive** on the **Operations** (Fig. 6) screen.

a. Change **Abrasive** from "**off**" to "**on**" (Fig. 13).
b. Select **Override** and change it from an "**X"** to a "**Check**". The drum will begin to turn.

Figure 13

c. Start the slurry dripping on the polishing plate by spraying ethane diol into the drip tray.

i. The drip rate should be around 3 or 4 a minute.

7. Set Time (Fig. 6) to 8 minutes for the first round of polishing.

8. Select **Sweep** (Fig. 6) and press ok; make the **Inner** 40%, **Outer** 100%, and **Speed** 100%.

9. Select **Plate** and press ok. Make sure it is set to 5 rpms.

10. Select **Start** and press ok**.**

11. Increase the plate speed to 58 rpms.

12. Watch the samples. The carousel and the sample holder should be rotating. Also, make sure the samples are not "sweeping" too far or they will go off the polishing pad.

    a. If the sample holders are not rotating help them with your hand. Also, adjusting the "**Speed**" of the WG2 and the **Sweep** can help this.

13. When the time has elapsed press **Stop**.

14. Reset the plate speed to 5 rpms.

15. Remove the sample holders by lifting the post and rotating them. The weights can be left on.

16. Remove the sample from the holders by pulling up on one corner with your thumb. It is a good idea to wear gloves when removing the slides.

17. Clean the samples and dry them.

    a. The sample holders should be wiped down.

18. Measure the samples with the micrometer (refer to the Lapping Samples user guide) and make note of their thickness on the sample tray.

19. After the first time on the polishers scrape off the excess resin with a flat razor. If the resin is left on it will prevent the sample from polishing down to the target thickness.

20. Before leaving at the end of shift make sure the scoop in the abrasive drum is out of the slurry.

GETTING THE RIGHT THICKNESS AND POLISH

1. Target thickness is 30 microns.
    a. Keep in mind; it is always better to have it too thick than too thin. Materials can always be taken away but never added.
2. If samples are polishing down fast:
    a. Use less weight and shorter time.
3. If samples are polishing down slow:
    a. Use more weight, longer time, and increase the "**Speed**" of the WG2
4. If the sample becomes wedged (thicker on one side than the other) hold it on the polisher by hand.
    a. Hold the thinner side of the sample with your left hand.
    b. Place the thick side of the sample on the edge of the polishing pad while other samples are running.
    c. Use one or two figures on your right hand to apply pressure to the sample.
    d. While holding the sample on the polisher move it in a circular motion.
    e. Measure it every 8 to 4 minutes.
5. Do not only use the micrometer to determine thickness.
    a. Place the sample under the microscope and turn on the transmitted light. Look for an "identifying" mineral such as, quartz or plagioclase.
        i. If the sample is too thick these minerals will turn from black to yellow when rotated.
        ii. If the samples are just right they will turn from black to a very light yellow.
        iii. If the sample is too thin they will turn from black to clear.
6. Determine how polished the sample is.
    a. Place the sample under the microscope and turn on the reflected light.
        i. The minerals should look "clear" not "grainy"
        ii. Some soft samples will not polish well no matter what.

Credit

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Archive

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