

Cutting Billets with PetroThin

CUTTING SAMPLES WITH THE BUEHLER PETROTHIN: USER GUIDE

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Audience:	Technicians
Origination date:	4/29/2013
Current version:	7/30/2018
Domain:	Thin Section Lab
System:	Buehler PetroThin
Keywords:	Cutting Samples

This user guide will help thin section technicians cut off the main bulk of the sample on the Buehler PetroThin. This will prepare the sample for lapping on the Logitech LP50 to precision thickness. For more information on the Buehler PetroThin refer to [The Operation and Maintenance Instructions PetroThin, Thin Section System](#) manual, located in the black binder in the Thin Section Lab cabinet labeled "Equipment Manuals and Thin Section Prep".

PREPARING SAMPLES

1. Use a flat razor blade to clean the extra resin off the slide around the sample (Fig.1).
 - a. If there is too much excess resin on the slide it will cause the slide to bow under vacuum on the PetroThin chuck face (Fig. 3). This will cause a bad seal or will crack the slide.

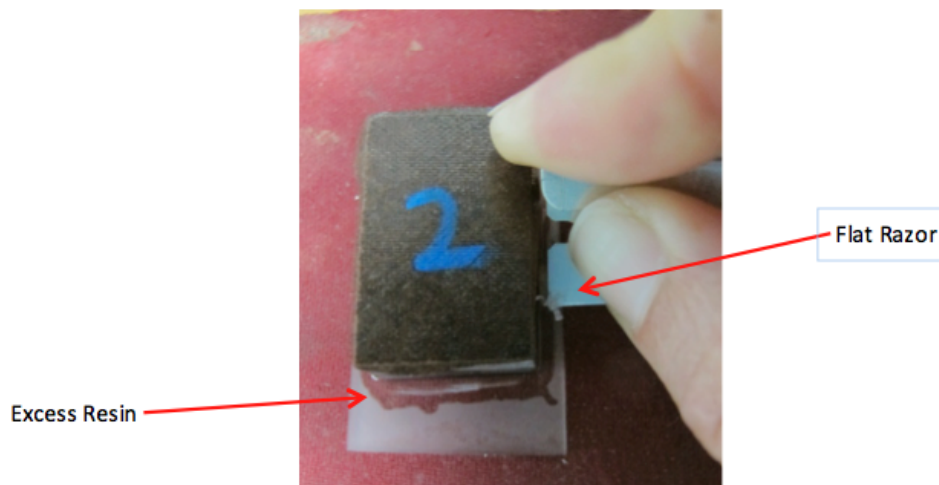


Figure 1

2. Use the diamond tipped pen to etch the sample number and orientation arrow if applies, onto the bottom right corner of the slide (Fig.2).

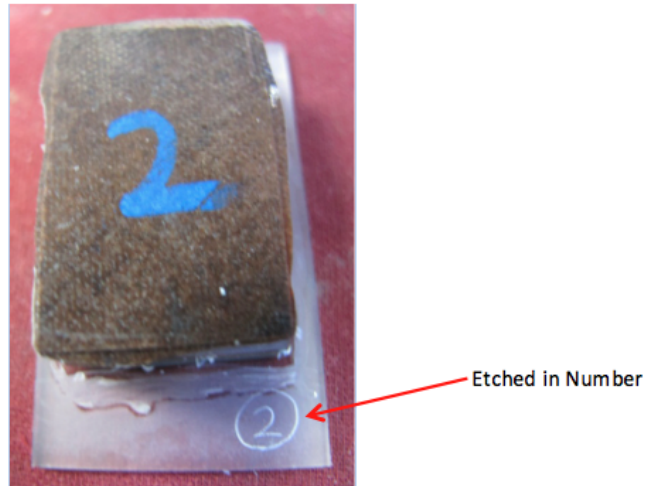


Figure 2

3. Flip the slide over and clean off any excess resin the back side of the slide with the flat razor. Then, wipe the slide and PetroThin chuck face clean with a kimwipe and isopropyl alcohol.

SECURING SLIDES TO THE CHUCK FACE

1. Connect the vacuum hose on the PetroThin to the vacuum pump hose if not already done (Fig. 3).

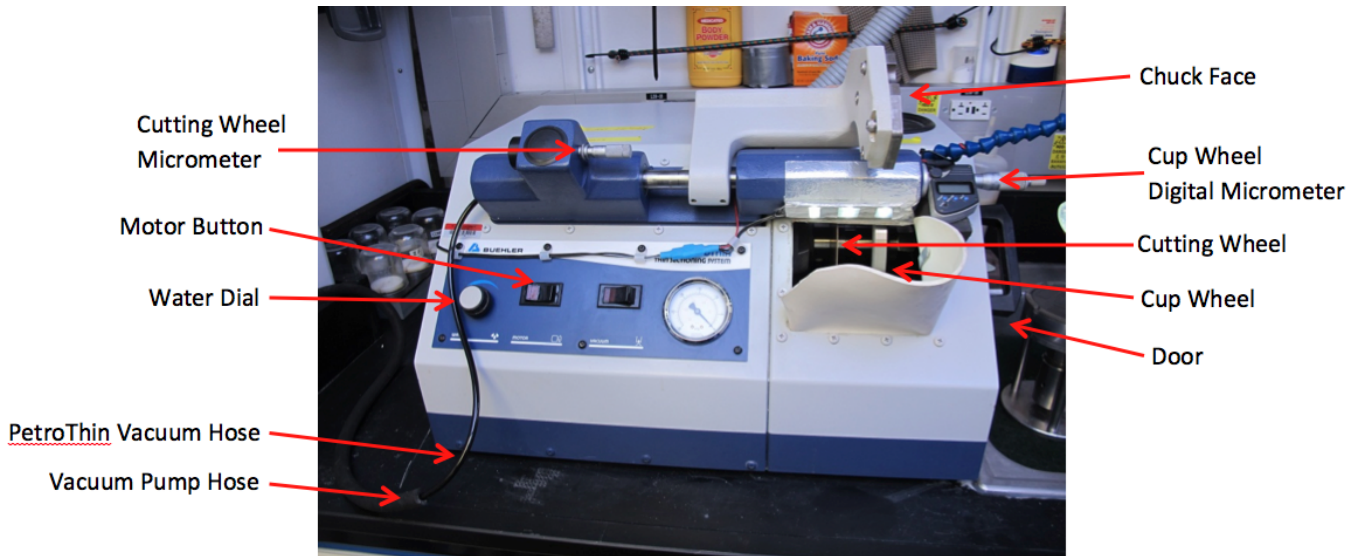


Figure 3

2. Turn on vacuum by turning on the power strip connected to the wall just left of the PetroThin (Do not turn on the **Vacuum** button on the PetroThin).

a. Check the oil in the vacuum pump every few days.

3. Hold the back side of the slide onto the chuck face over the vacuum grooves and in the plastic pegs. Close the valve on the upper right side of the Logitech VS2 (Fig.4).

a. Watch the gauge on the left side; it should be in the green around 25 in/Hg.

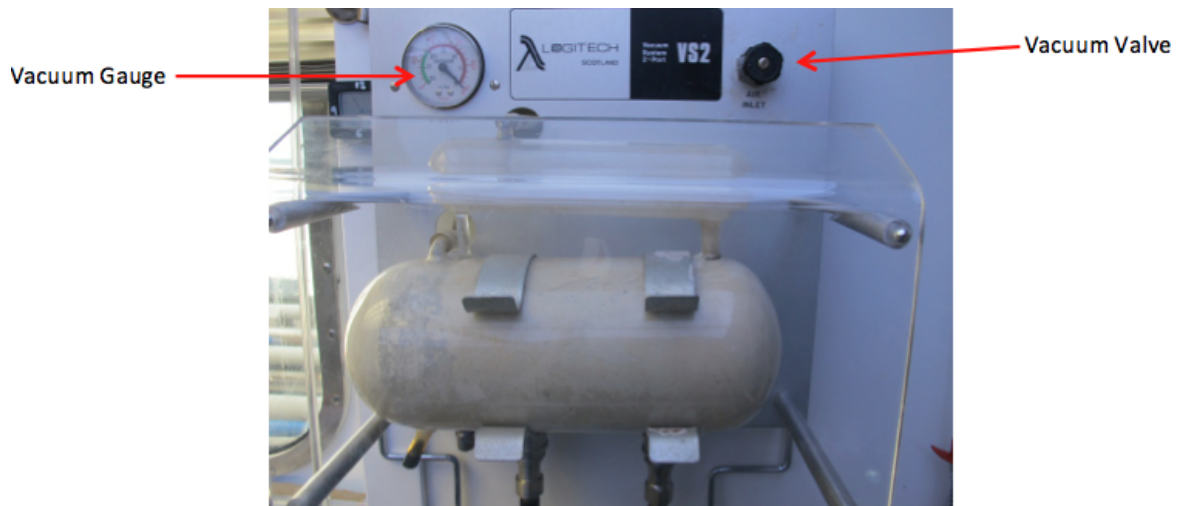


Figure 4

4. The slide should be secured to the chuck face now and unable to move.

USING THE CUTTING WHEEL

1. Set the cutting wheel micrometer to three increments and to 25 (Fig. 3 and 5).

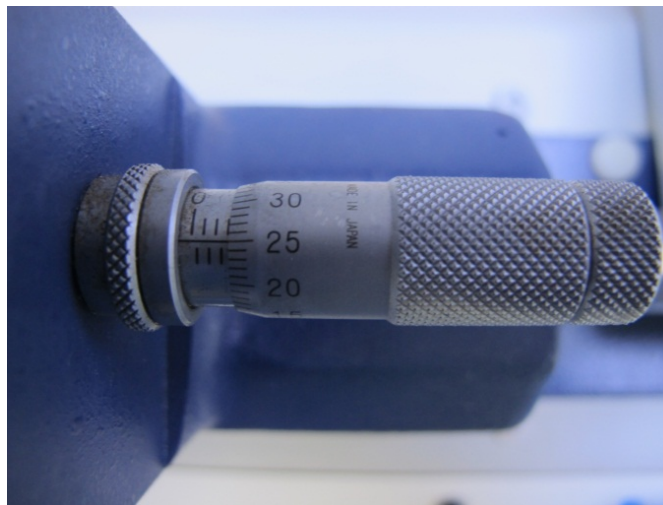


Figure 5

2. Turn on the PetroThin wheels by pushing the **Motor** button on the front (Fig. 3).
3. Turn on the water by turning the **Water** dial counter clockwise (Fig. 3). Don't need too much water. Just enough to keep the sample wet.
 - a. If the sample is water soluble do not turn on the water. While cutting, spray isopropyl alcohol on the wheel.
4. Put on hearing and eye protection.
5. If the PetroThin has not been used for a while it is a good idea to sharpen the blades.
 - a. There are sharpening blocks in the drawer under the PetroThin.
 - b. Hold the block firmly and slowly run it against the cutting wheel and cup wheel.
6. Push the chuck face all the way to the left and lower it down slowly (Fig. 6).

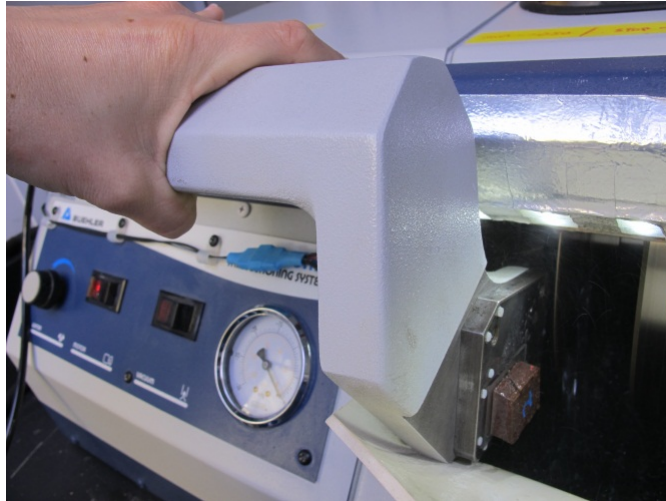


Figure 6

- a. Once the cut begins do not apply pressure down. Its own weight should be enough.
- b. When it gets close to cutting at the end, the sound will change to a higher pitch. At this time slow down the cutting and take some weight off the sample.

7. Once the sample is cut all the way, bring it back up slowly. Let the chuck face move back to the right side but do not let it slam back into place. Apply pressure to it because it is spring loaded.

USING THE CUP WHEEL

1. Keep the water, motor, and safety equipment on.
2. Set the cup wheel digital micrometer to -0.600mm. (Fig. 3 and 7).



Figure 7

3. Lower the chuck face down slowly so the whole sample has passed the cup wheel and bring back up slowly. Repeat a couple of times.
4. Set the digital micrometer by turning knob toward yourself to -0.500 and repeat step 3.
 - a. Then to -0.400mm, -0.350mm, -0.300mm, -0.275mm, -0.250mm, -0.240mm, -0.230mm, -0.225mm, -0.220mm, -0.215mm, -0.210mm, -0.205mm, -0.202mm, -0.200mm.
 - i. When cutting off less of the sample it is ok to speed up.
 - ii. If the sample is too soft to lap down on the LP 50 it can be cut down on the cup wheel too. Take the sample down in increments to -0.069 slowly. After that it can go straight to the Logitech PM5 polisher.
2. Always set the digital micrometer back to -0.600, as a safety measure.
3. Open the Logitech VS2 vacuum valve (Fig. 5) and remove the slide from the chuck face.
4. Turn off the water, motor, and vacuum
5. Clean the, sample, slide, and chuck face with a kimwipe and isopropyl alcohol.

6. Open the door on the right side of the PetroThin and remove the cut off billet (Fig. 3).
 - a. Place the billet back into the sample bag.

Credit

Original version created by Emily Fisher

4/29/2013

Archive

- [Cutting Samples with the Buehler PetroThin 374.docx](#)