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PROCEDURES FOR PICKING ZIRCONS

By

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Alaska Division of
Geological and Geophysical Surveys

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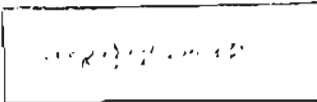
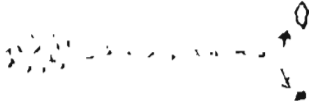
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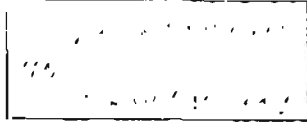
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1. Clean work area and microscope thoroughly. Remember that the work area around the binocular microscope is likely to be contaminated with zircons from other samples. Always put at least two pieces of paper underneath glassware and zircons to prevent zircons on the desk from adhering to the bottoms of glassware or weighing papers. Zircons on the bottoms of these items may inadvertently fall into the sample.
2. Tape down a large sheet of white paper on desk.
3. Clean silver reflective, static-preventing sheet and tape that over the white paper.
4. Clean all petri dishes, slides, watch glasses and brushes.
5. Put 2-3 glassine sheets inside a petri dish with slide on top.
6. Check brushes under scope to make sure they're completely free of zircons.
7. Carefully pour some sample out of sample onto the slide in dish. Close up, the bottle immediately to prevent spilling the sample accidentally. LABEL PETRI DISH WITH SAMPLE INFORMATION and also "picking in progress."
8. Using the brush or edge or glassine paper - move the sample into a thin line across the slide.

9. Under the scope - make sure all grains are in the line and the rest of the slide is clean.
10. Adjust the slide in the petri dish so that you can see all the edges of the slide, even at high power, by simply moving the petri dish. That way, when you discard the rejects onto the paper you can see them going off the edge of the slide. When you're moving the sample around on the slide, it's best to move the dish and slide together, keeping the tip of the brush in the field of view so you don't have to keep finding it each time you move it.
11. Adjust the scope to a magnification suitable for the size of the zircons you are picking. After working for a while at high power, it is commonly easier and more relaxing to work at a lower power for a while.
12. Adjust light so it illuminates the field of view obliquely.
13. Start picking by stringing out a few (10-20) grains at the head of the line.


Push the good zircons to one side (above the line or below it) and the rejects the opposite way. This will form 2 lines from one.

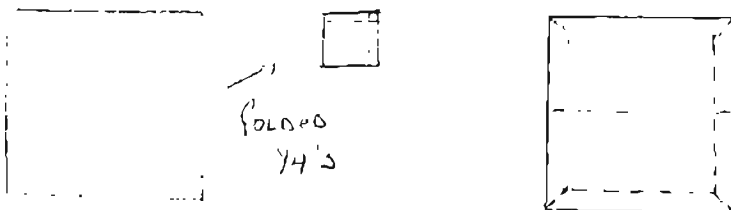


- 13b. If it difficult to pick zircons due to static electric charge on the brush or the slide, use a humidifier under the desk or in a small closed room.
14. Before stringing more sample out to pick, make sure that the ones you've already picked are out of the way.
- 15a. As you are picking, make descriptions of the zircon morphology and color and the minerology of the rejects on a piece of paper to keep with other notes on that sample.
15. Continue picking until you've formed 2 lines on the slides (zircons and rejects).
16. At this point, take your brush and discard all the rejects onto the glassine paper in the petri dish.
17. Move all the good zircons into a line again and check through them once more to make sure there are no rejects in the good pile. If there are very few rejects in the slide then there is no real need to move them into a line. In this case, you can just check through them where they are. Use a watch glass with water to wet brush hair. Pick up rejects from glassine paper with wet hair and dip it back in water to remove reject.
18. When the slide is free of all rejects, you can add the sample to the dish of keepers.

NOTE

Before opening the keeper dish - make sure the bottom and sides of the slide are free of rejects -- otherwise these might drop out into the keeper dish accidentally. Once this is done, open the keeper dish and brush the good zircons from the slide into the dish. On cold, dry days when there are high static charges, very small zircons in the dish can be "dragged out" by the static charge on the lid so open it carefully.

A keeper dish consists of one flat glassine sheet with one on top which has been folded in fourths -- then unfolded. About $\frac{1}{2}$ " should be folded up on each edge to make a kind of box.

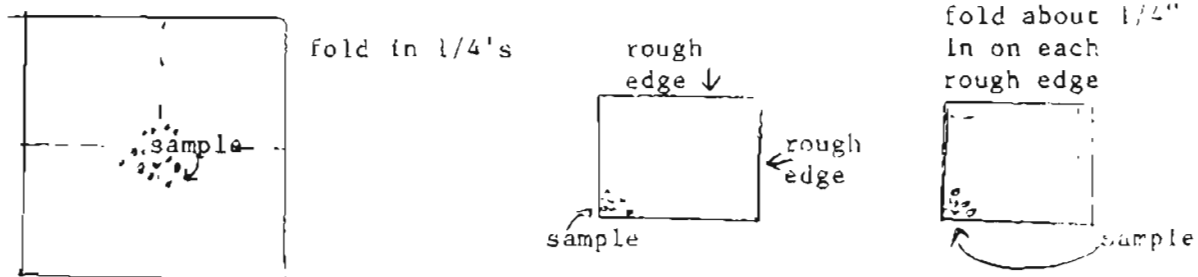


IMPORTANT

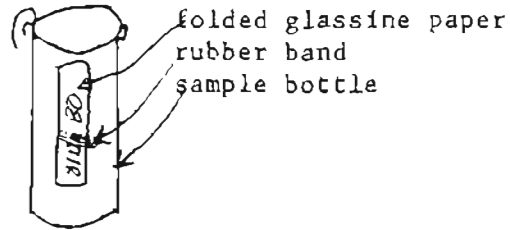
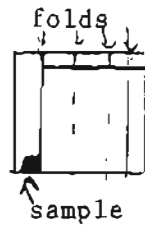
Also label the glassine sheet with sample information and keepers. LABEL THIS PETRI DISH WITH SAMPLE INFORMATION AND WRITE "Keepers" on it to distinguish it from those which are still being picked.

19. The rejects should be saved in a glassine paper which is folded and put in a plastic sample bottle. Both the folded sheet and the bottle should be labeled with sample information and "rejects".
20. Wash the slide and the brushes between lines. It is important to get the slide really clean and not to touch it with your fingers. The oil will make the sample stick to the slide. I usually try to blow all the paper fibers off before I put the zircons on it.
21. Add a new glassine sheet to the petri dish before starting a new line. Repeat from (Number 6) above.
22. When all sample has been picked, the keepers must be checked one more time to make sure no rejects made it in by accident. This can either be done in the keeper dish (right on the glassine paper) or by transferring them to a clean slide and petri dish to do it -- which ever way is easier for you.
23. Once the final picking is complete, the keepers are folded into the glassine paper and put in a sample bottle -- both should be labeled with all sample information.

How to fold glassine paper with sample



Fold in from edge in $\frac{1}{2}$ " increments -- edge with sample should be folded in also so the paper can't be abraded away where the sample is.

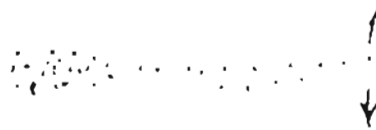


Quality of sample -- Sample must be 100 percent pure when finished.

1. Zircons should be tetragonal in cross section.
2. Should have 1 good termination (usually - ask isotope geologist).
3. Should not have debris attached to them.
4. Should not be stuck together by other minerals.
5. Should be fairly free of inclusions.
6. Usually should be translucent (depending on instruction from Isotope geologist).
7. If two or more distinct sets of zircons are present, try to separate them.

For ease of picking

1. Make sure slide is really clean -- washed in hot soapy water-- try not to touch it with your fingers -- the oil will make grains stick to it. I usually try to blow all the paper fibers off before I put the zircons on it.
2. Try to put the zircons in a thin line along the slide -- so they're not all clumped up -- you can kind of string some out (at the head of the line) as you go.
3. When you're moving stuff around on the slide, it's best to move the dish and slide together --- keep the tip of the brush in the field of view so you don't have to keep finding it each time you move it.
4. When I start picking -- I usually move the slide in the petri dish so that, under the highest power I'll be using, the lower edge of the slide can be seen in the field of view. That way, when I discard the tailings onto the paper I can see them going off the lower edge of the slide. (This depends on which way you are moving the tailings, of course.)
5. When I'm picking, I usually string a few (10-20) grains out in front of the line.



then I push them to each side -- before I string any more grains out. I push both the good zircons and the rejects (up or down) out of the field of view.

