countered because the rock contains potassium-bearing minerals, (microcline, mica, etc.) that, upon decomposition by hydrofluoric acid, yield potassium silicofluoride (K_2SiF_6). This compound occurs in nature as the rare mineral hieratite. It crystallizes in the isometric system, and has an index of refraction of 1.339, that is slightly higher than the index of water, 1.333.

Potassium silicofluoride is very slightly soluble in water; 100 parts of water at 17.5°C dissolve 0.12 part and at boiling temperature only 0.95 part (Mellor, 1925). This compound must be removed in order that coesite and stishovite, if present, be identified, and in the case of stishovite, quantitatively determined.

Samples of shocked rock from many craters were analyzed for coesite and stishovite in this laboratory. The potassium silicofluoride that formed was laboriously removed by as many as twenty treatments with dilute hydrochloric acid at steam bath temperature. This required approximately one month to accomplish for each sample.

The problem was belatedly solved when concentrated sulfuric acid was added, at room temperature, to potassium silicofluoride that had been dried on the steam bath. The reaction is as intense at that which occurs when finely ground calcite is treated with dilute hydrochloric acid. The gas, silicon tetrafluoride, is evolved and potassium sulfate is formed. In less than one minute the reaction is completed. After diluting with water, the coesite and stishovite, if present in the sample, can be filtered, washed, and weighed.

Reference

Mellor, J. W. (1925) *A comprehensive treatise on inorganic and theoretical chemistry, v.* 6, p. 948.

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A SLIDE HOLDER FOR THE MAKING OF POLISHED THIN SECTIONS IN VIBRATORY POLISHERS

M. A. Petty and J. H. Weymouth, *Industrial Materials Section, Division of Tribophysics, Box 4331, G.P.O., Melbourne 3001, Australia*

Increasing use of polished thin sections in light microscopy has prompted the development of a suitable micro-slide holder for use on commercially available vibratory polishing machines such as the Syntron. Although time per section is increased under this method, an overall saving will result because each machine can simultaneously polish up to three $3'' \times 1''$ slides, thereby freeing the technician for other work.

To achieve a good polish by this method three points must be kept in mind:

1. The holder must be circular so that it will rotate on its own axis as it moves around the head of the polisher to eliminate directional polishing.
2. The holder must apply some pressure to ensure polishing of the specimen.

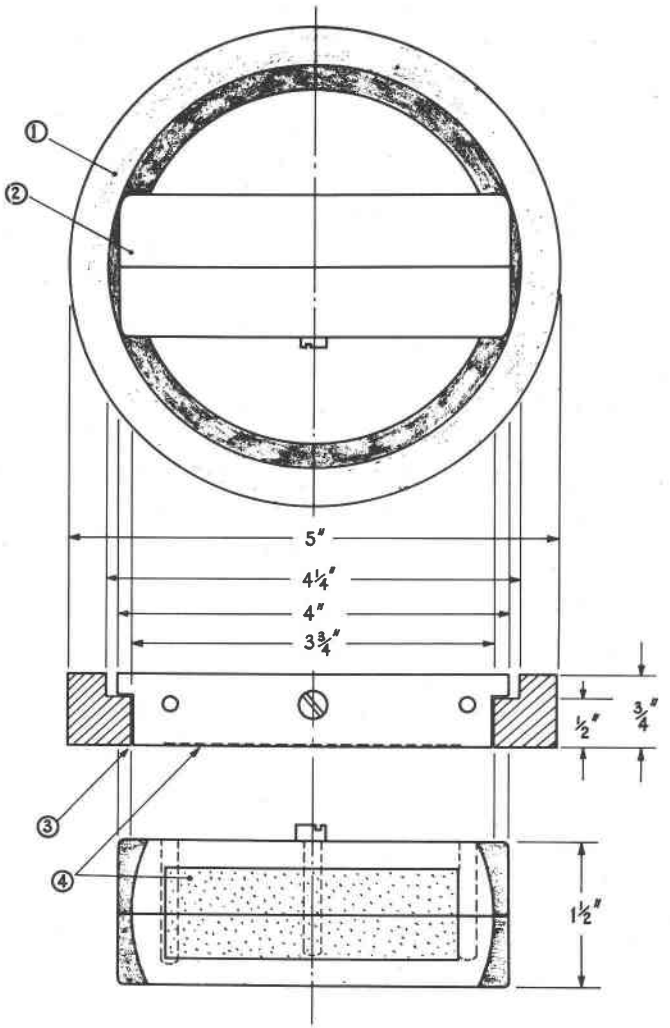

FIG. 1. A slide holder for the making of polished thin sections in vibratory polishers: (1) Annulus; (2) Holder; (3) Polishing surface; (4) Recess.

3. The slide must be held firmly to prevent vibration against the metal of the holder.

A simple and effective method of implementing these points is to have a slide holder resting in an annulus (see Figure 1). The holder is made in two halves, with a central recess $3\frac{1}{4}'' \times \frac{15}{16}'' \times \frac{1}{32}''$ milled out to accept a $3'' \times 1''$ slide and allow it to project slightly below the holder. Dimensions can be altered to suit slides of other sizes. The two halves of the holder are held together by a pin near each end and with a central screw to tighten the holder onto the slide. The ends of the holder are radiused and stepped to fit the annulus, the dimensions of the step being such that the polishing surfaces of both holder and annulus are in the same plane. This ensures that the weight of the holder is applied only to the micro-slide. Each item is made from stainless steel to resist corrosion.

In order to produce a relief- and scratch-free polish on the section, the Syntron was fitted with two polishing cloths, one over the other. The base cloth was Buehler micro-cloth and stretched over this was a finely woven cloth made from monofilament nylon. The latter cloth, having no nap, produced a polished surface free from relief. Should any relatively large particles become detached from the specimen during polishing, these pass through the nylon and are retained by the nap of the micro-cloth beneath, effectively removing them from the system and thus avoiding scratches.

After the final step in grinding the thin section to the desired thickness (down to 10 μm for Portland cement clinkers) using 600 alumina on a glass plate, the slide may be transferred directly to the polisher without intermediate polishing steps. The polisher, armed with a suspension of Linde "B" alumina in either water, or kerosene for those materials which react with water, produced a good polish on a Portland cement clinker section in about 1 hour, and on a magnesite-chromite refractory section in about 18 hours. Overall polishing time could, of course, be reduced by the use of one or more intermediate hand-polishing stages.