

## **An improved surface plate for hand polishing to obtain flat polished sections for micro-chemical analysis.**

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Recent progress in petrological studies are largely depend on the development of micro-analysis techniques. For micro-analysis such as EPMA, SIMS, and ATR micro-FTIR, the flatness of the polished surface is essential to obtain good analytical results.

Conventional polishing techniques involve final buffing with a cloth, which leads to undesired relief that develops on the polished surface near the boundaries of relatively soft and hard materials; for example, soft glass inclusions in hard quartz phenocrysts, and hard glassy ash particles mounted in soft resin, where many interesting geochemical phenomena are recorded.

A fine-grain abrasive film is more rigid than a cloth and so does not follow the surface differences between different materials. Direct interaction between the flat abrasive film and the flat polishing surface, however, can result in sticking or scratching. Furthermore, a thin fluid film between the polishing surface and the abrasive film can cause the abrasive film to slip.

A grooved glass surface-plate I present here allows ideal interaction between the flat polishing surface and an attached abrasive film. The grooves prevent the formation of a film of polishing fluid. It provides advantages over conventional techniques in terms of making a flat polished surface, even if the sample comprises both relatively hard and soft materials.