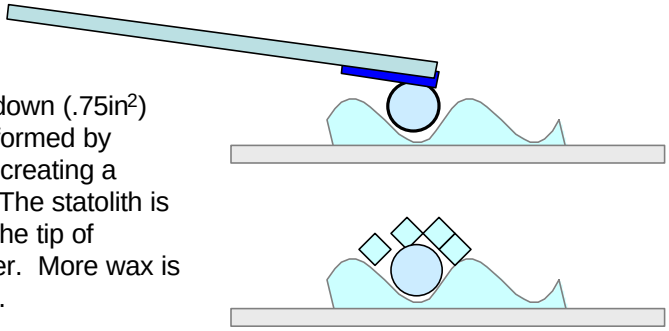
Cross Sectional Preparation of CaCO3 Statoliths

Process Outline:

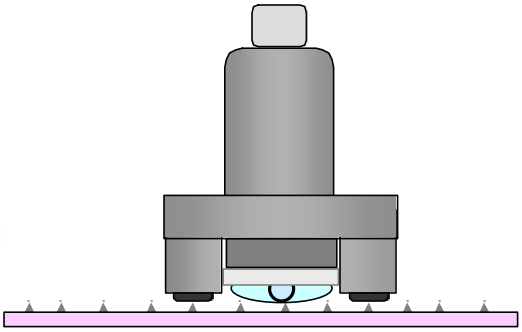
1. Mounting

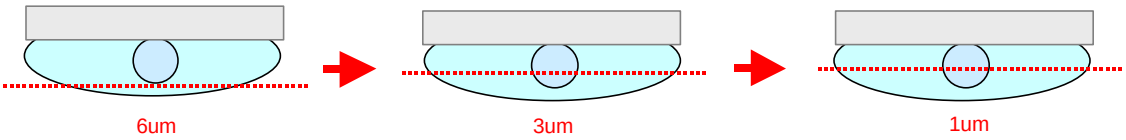
A single statolith is mounted onto a cut down (.75in^2) glass microscope slide. Mounting is performed by melting mwh135 wax onto the slide and creating a crater in the softened with a tooth pick. The statolith is picked up with a mild adhesive tape on the tip of tweezers then place inside the wax crater. More wax is placed on top of the statolith and melted.



2. Fine Grinding

The embedded statolith is mounted onto the Model 155L low force lapping fixture. Material is removed initially using 6um diamond film to just above the statoliths. Then 3um diamond film is used to removed 50-150um of material depending on diameter size of statolith. And finally 1um diamond lapping film is used to until the desired cross section is achieved.





3. Results

The results on the 6 samples prepared basically confirmed that reducing the force applied to the statolith using the Model 150L showed better results when compared with the Model 150. 1 sample in 6 was cracked with the 150L and was due to poor hand polishing technique; all samples were cracked with the Model 150 but were subsequently repaired/ attempted to clean up using the 150L.

4. Optional Accessories

To semiautomate the process the Model 920L Lapping Machine w/ 92034L motorized workstation can be utilized. The Model 92034L allows for motorized rotation of the Model 150L lapping fixture thereby simplifying the process parameters and minimizing operator tendencies for error and supervisor. The Model 155L lapping fixture holds up to 1.25" diameter specimens and well as reduces force (load) applied to specimen.

Model 920L w/ Model 150L lapping fixture