METHODS FOR LABELING SILICONE MOLDS

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ABSTRACT

Finding efficient ways to label external surfaces of a large and small silicone molds using common materials is a problem in Vertebrate Paleontology labs. Eight lab practices were used to label the exterior of silicone molds both retro and pro-actively. Materials used included markers, Paleobond™ , plastics (Butvar B-76, paper cement), tapes, paint, and silicone based compounds (silicone "smooth-on" and Vinyl Polysiloxane). The best retro and pro-active labeling technique is the silicone based material Vinyl Polysiloxane.

METHODS

We created twelve silicone substrates to test various methods of pro-actively and retro-actively labeling silicone molds. Eight common lab practices used to label silicone molds, were tested in twelve different experiments. In the experiments involving paper, the paper was tested both as a laminated (cold laminate) and non-laminated sheet, for strength and absorption resistance. These eight lab practices were applied to the silicone substrates and left overnight. They were then tested for strength of bond and flexibility.


The tape (masking and Scotch) formed a weak bond that allowed sliding on the silicone with little to no resistance on both the laminated and non-laminated paper. Under flexion and extension both tapes completely detached.
Neither the laminated nor the non-laminated paper formed a bond with the silicone when treated with the rubber/paper cement. Under flexion and extension both laminated and non-laminated paper failed to remain attached to the silicone.

The Paleobond™ formed a weak bond in both the non-laminated paper and the laminated paper. However, upon flexion and extension the bond was easily broken.

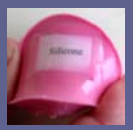

The Butvar (B-76) formed a weak bond in both the non-laminated paper and the laminated paper. However, upon flexion and extension the bond was easily broken.

The acrylic paint immediately beaded-up and did not penetrate the surface of the mold. Once dry the paint was subject to peeling and cracking under flexion and extension.
As with the paint, the sharpie marker also beaded-up, not penetrating the surface. When we tried to paint over it with a thin layer of silicone, the writing smeared and was illegible. Under flexion and extension the writing stayed intact, although illegible.

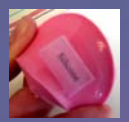


We retroactively incorporated a heavy 100% cotton blotter paper into an existing mold by encasing the perimeter with fresh silicone. The silicone bonded well to pre-existing silicone substrate, but when flexed the paper escaped the perimeter silicone.
We also proactively incorporated a heavy 100% cotton blotter paper into a new mold, by sinking the paper into the very surface of the new mold. With this method we hoped to create enough of a barrier with the surrounding mold to keep the paper intact. However, when the silicone was flexed the paper peeled from the perimeter silicone.

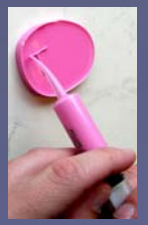





We retro and pro-actively incorporated a laminated paper into a new mold, hoping that the lamination would create a sufficient barrier between the mold and the paper to stabilize the paper and keep it from eroding/degrading. However, all the lamination did was to make a sharp edge for the silicone to wrap around, but not stick to. As with the other paper encasements, the paper peeled away from the silicone when flexed.

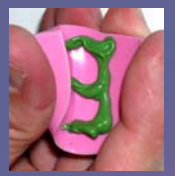
We tried to retroactively place regular and heavy 100% cotton blotter paper onto a mold and paint over the paper with new silicone. The silicone soaked into the blotter paper, increasing the set time of the silicone. Under flexion and extension the paper remained immobile. Although the paper was sealed, it was easily removed because the thicker paper was weaker than the silicone/silicone bond.





We tried to write on existing silicone molds using silicone and a dental syringe. Although the results seemed promising during writing, the silicone soon spread to an illegible amount, making small writing virtually impossible. The new silicone bonded well with the existing silicone substrate and remained in tact during flexion and extension.



Finally we used a product called Vinyl Polysiloxane to write on an existing mold using a dental syringe. Although the Polysiloxane did not spread like the silicone, it was not possible to write in a small font size. The compound did stay intact and stuck to the silicone after repeated attempts to remove it.



The best pro-active method for labeling both large and small silicone molds is to write into the clay mold before making the mold.

CONCLUSIONS

In conclusion, the best retro-active method to label pre-existing silicone molds is the compound Vinyl Polysiloxane. While this method is virtually useless on small molds requiring small writing, it is useful on larger molds. After the conclusion of this experiment, finer tips for the dental syringe used with Vinyl Polysiloxane were discovered and may be utilized in finer detail writing for smaller molds. The major limitation of this method is the abbreviated working time of less than one minute. The best pro-active method for labeling both large and small silicone molds is to write into the clay mold before making the mold.