

DEMONSTRATION VIDEO TRANSCRIPTION

Get Glue On It (GGOI): A Nontoxic Coating Protocol for Creating 3D Models of Shiny Lithic Artifacts

Allison Fashing, University of Idaho; Chloe Dame, University of Idaho; Jes Holler, University of Idaho; Savannah Johnson, University of Idaho; Leah Evans-Janke, University of Idaho; Jylisa Doney, University of Idaho; Marco Seiferle-Valencia, University of Idaho

In 2021, the University of Idaho Library and Alfred W. Bowers Laboratory of Anthropology received a Council on Library and Information Resources Digitizing Hidden Collections grant to digitize the Donald E. Crabtree Lithic Comparative Collection, a preeminent collection of lithic tools created and collected by Donald Crabtree. Most of the tools in the Crabtree Collection are made of obsidian, resulting in a problematic level of shininess when attempting to take 2D photos and create 3D models using photogrammetry. Coating objects is an established norm when imaging certain shiny objects for photogrammetry. These processes are usually toxic, may mask an object's original color, and damage potential future forensic examinations of these objects.

Our grant team came up with a unique solution that addressed the toxicity and color masking parts of this problem by creating a coating of Elmer's glue and water. When painted on shiny objects our process, named Get Glue On It, results in a matte finish. In this video, we will demonstrate our process and talk more about how and why it works.

One very important note is that Get Glue On It is not appropriate for all or even most objects. Get Glue On It is best for only those objects that have already been cleared for the most invasive handling and processing methods, such as experimental archaeology collections. As with most coating methods, applying and removing Get Glue On It will interfere with any residues present on the objects, corrupting future forensic examinations or potentially other specialized analyses.

The first step is to gather supplies, which include Elmer's White School Glue, warm water and airtight container paint brushes, small bowls, neoprene paper towels, and of course obsidian objects or any other shiny object. Before coating the object make sure all the supplies mentioned are staged and ready. The second step is to prepare the glue mixture. This is made up of about 80 percent glue and 20 percent water. We have found it much easier to mix the two when using warm water, as this helps us achieve the consistency we need to coat the obsidian objects. We usually make a large batch at a time and store it in an airtight container for easy access. Our team likes to apply the coating with the object placed on a piece of neoprene covered with a paper towel. We then set the coated object on the uncovered neoprene to dry. If you leave it on the paper towel, it could get stuck and ruin the glue coating. We use inexpensive craft paint brushes but any paint brush can be used. Be aware that brush hairs may fall out and stick to the object. Remember to remove any stray hairs before the coating dries so they won't interfere with the

2D photography or final 3D modeling. To speed up the drying time, you can set the objects in front of a fan. Once both sides are completed and dry, check to see if there are any shiny spots and simply add more glue where needed. Once completely covered, the object is ready for the photogrammetry process.

A time lapse of our process will play while we discuss why we attempted this coating method in the first place. During our grant's planning phase, the grant team first learned of a coating method created by Samantha Porter at the University of Minnesota, which involves dusting objects with dry baby powder. This process inspired our team to seek out other nontoxic alternatives, especially since using developer spray or foot spray, two popular methods, carry too many respiratory risks. When our team failed to get consistent results with a variety of dry powders, we began to wonder what other coating materials could be used that would be nontoxic, affordable, and, ideally, preserve the object's finish and appearance.

One fateful afternoon, a Microsoft Teams chat generated the idea of trying Elmer's glue: cheap, nontoxic, and famous for leaving a thin matte layer. The team jumped into action. Within minutes Marco Seiferle-Valencia, Alison Fashing, and Leah Evans-Janke were mixing test batches of different proportions of glue and water and sharing the results in real time. What started as a collaborative brainstorm by the grant leadership team was eventually finalized into a formal process with help from our team of undergraduate student digitization assistants, who helped perfect the Get Glue On It method. This coating method has allowed us to more easily handle and photograph shiny objects and create 3D models especially when compared to other coating processes like developer spray or foot powder. Overall, Get Glue On It is affordable, reliable, and consistent, allowing us to produce a high quality 3D shape file, all in one take, that still includes the object's original color.

We look forward to sharing the final digitized collection with everyone soon. If you enjoyed this video please consider following us on social media for project updates. Thanks for watching!

Note: The video corresponding to this transcript is located at https://youtu.be/A-M9s_L0bjg.