Synthetic Leather for Book Repair: Experimenting with *Cast Composites*

Grace Owen and Sarah Reidell
The New York Public Library Goldsmith Conservation Lab

"CAST COMPOSITES" represent a novel conservation treatment system in experimental development at the New York Public Library that is appropriate for the 2010 LCCDG topic "Revisiting past practices and their evolution". Cast composite films replicate the patterns of original surfaces like leather or cloth grain using materials widely used in conservation and adapting surface casting techniques common in objects and paintings conservation. They are easy to create from affordable supplies that are readily available at art supply stores. Treatment uses for cast composites are still in the experimental stages but they have been successful as a repair material and have great potential for other applications like rebacking. Completed cast composites are less invasive, thinner, and visually more compatible than traditional repairs with leather or Japanese papers.

USES: Current experimentation includes repair mends for split joints, lost caps, board reattachments, fills for edge or corner losses, etc. with plans for possible modification of recipe for use in rebacking, molded spines, and rebinding.

PREPARATION: Cast composites are created using acrylic gel mediums and paints widely used in conservation and silicone mold surface texturing techniques common in objects and paintings conservation. Each mold is created from a surrogate piece of leather selected to closely match the surface of the object being treated. The ratio and components of a cast composite can be adjusted to alter aesthetic and physical properties like gloss, thickness, and flexibility.

APPLICATION: Mends can be applied with common acrylic adhesives like Lascaux 498HV using standard conservation techniques. Cast films can be used alone or as composites with support substrates like paper, non-woven polyester, or textile. Substrates can be embedded into the acrylic blend layer directly during the casting on the mold or adhered later to the cast film. Cast composites can easily be adjusted to match speckled or faded surfaces before, during, or after application to the volume with acrylic paints.

ADVANTAGES:

- Supplies readily available from art supply vendors
- Low overall cost
- Easy to create
- Low toxicity & requires no fume hood
- High quality, aesthetic matching of original surface
- Customizable color, texture, sheen, & thickness
- Cast molds are reusable many times
- Lacks inherent vice and unpredictability of leather
- Adds protective layer to paper repairs
- Variety of treatment applications
- Scalable treatment use, from collection- to item-level
- Build up a "surface library" of molds & films
- Good ingredient information & customer service from manufacturer

DRAWBACKS:

- Still under development
- Relies on available manufacturer's testing
- Requires rigorous durability and physical testing
- Still have inherent red-rot problems to contend with
- Learning curve can be intimidating
- Adhesion can be difficult if film or adhesive layers overly thick
- Bubbles can form and ruin surface on mold and in cast composite unless properly mixed

CONCLUSION: Cast composites show great promise as a repair material. We are still experimenting with them but we are pleased with our findings so far. They are fast and easy to make once the technique is learned. Supplies for the repairs are easy to source and relatively inexpensive. The system is customizable and opens up a range of possible techniques for repairing bound materials and matching surface textures. The cast composite system can be scaled up or down to fit the needs of special or general collections. Films can be made in bulk in advance to make a modular system with pre-made and pre-cut films and supports. Overall, the cast composite system produces less invasive and more complimentary repair materials for all conservators, whether they are in large institutions or small, modestly-equipped labs.

FOR MORE INFORMATION CONTACT:

Grace Owen gowen@nypl.org
Sarah Reidell sarah_reidell@nypl.org
Telephone: (212)-930-0723

The New York Public Library
Barbara Goldsmith Conservation Laboratory
Library Services Center
31-11 Thomson Avenue
Long Island City, New York 11101

SUPPLIES Available at art stores or internet retailers like DickBlick, Pearl Paint, Utrecht, JerrysArtarama, etc.

Rebound® 25 Smooth-On Silicone Rubber, http://www.smooth-on.com/Platinum-Cure-Sili/c1115_1132/index.html	"RTV" room temperature vulcanizing silicone mold kit. Widely available in art stores. Reusable, easy to clean mold. Two part kit, approx. $25 per kit
Golden Artist Colors, Inc. 188 Bell Road, New Berlin, NY 13411-9527; http://www.goldenpaints.com/products	Heavy Body Acrylic paints: 2 oz. tubes, $5.50+ ea Gel Medium, Heavy Semi-Gloss: 8 oz. jars, $9.75 ea GAC 500, Specialty Acrylic Polymers: 8 oz. bottle, $9.30 ea

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