

## Practical Applications of Lascaux Acrylic Dispersions in Paper Conservation

In cases when commonly used adhesives, such as wheat starch paste, gelatin, methyl cellulose, or klucel G, are not suited for a paper conservation treatment due to media sensitivity, or extremely hygroscopic or hydrophobic supports, Lascaux Acrylic Adhesives may provide paper conservators with alternative treatment options. This paper will emphasize the versatility and practicality of Lascaux Acrylic Adhesives for mending, lining, and filling problematic paper supports through several examples.

As described by the manufacturer, the base of both Lascaux 360 HV and 498 HV is a dispersion of a thermoplastic acrylic polymer on the base of methyl methacrylate and butyl acrylate with a pH 8–9. While wet, Lascaux 360 HV and 498 HV can be thinned with water; but as the films dry, the water molecules are expelled and the dry films are insoluble in water. The dry films remain soluble in Acetone, Toluene, and Xylenes. The dry 360 HV film is sticky, whereas the dry 498 HV film is elastic but hard.<sup>1</sup>

### REACTIVATED MENDING STRIPS

Lascaux 498 HV can be used as a reactivated thermoplastic adhesive for mending tears in particularly hygroscopic papers, such as transparent papers. The short and macerated fibers that comprise these modern transparent papers readily absorb moisture and expand considerably. Local flattening before mending allows for better realignment of the tears and fragments. However, subsequent introduction of moisture from an adhesive, such as wheat starch paste, methyl cellulose or gelatin, could result in local cockles as the fibers expand along the mends.

Lascaux 498 HV can be effectively used to make mending strips which could be reactivated with either heat or solvent.

### Procedure:

1. Brush a thin and even layer of Lascaux 498 HV onto a piece of silicon coated polyester film and dry the adhesive with a hair dryer. Silicon coated polyester is recommended to help facilitate separation of the mending strips from the polyester film. Expedited drying is recommended to prevent dirt or debris from accumulating in the adhesive surface.
2. Lay a piece of thin Japanese paper across the dry Lascaux film. Reactivate the adhesive with a tacking iron at medium heat through a piece of silicon release paper.
3. Once the Japanese paper is adhered to the Lascaux film, cut the sheet into narrow strips.
4. Peel the polyester away to reveal the adhesive just before positioning the strips on the verso of the primary support. The strip should bridge the tear with the adhesive against the verso of the primary paper support.
5. Reactivate the adhesive with a tacking iron at medium heat through silicon release paper or with a local brush application of ethanol.

The Lascaux mends are flat and local staining and tideline formation is avoided because the mending strips are void of water. In addition to meeting aesthetic goals, they are removable with either heat or solvent. The mending strips can be made well in advance of use, and can be stored almost indefinitely afterwards between polyester film sleeves.

### REACTIVATED LINING SUPPORTS

Lascaux 498 HV can be used as a thermoplastic adhesive when treating hydrophobic supports or objects. In cases where aqueous adhesives have no affinity for old adhesive residues, Lascaux 498 HV can be used to attach the compromised primary support to a Japanese paper lining paper.

### Procedure:

1. Mist a metal table with water, and lay down a piece of silicon coated polyester film. Secure the polyester to the table by squeegeeing all of the air bubbles out. Securing

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the polyester film to the table will prevent dimensional changes and planar distortions.

2. Wipe the moisture from the surface of the polyester and then apply a thin coating of Lascaux 498 HV to the polyester with a small paint roller. Use a smooth squeegee to remove excess Lascaux and smooth the film. This necessitates speed, because as the adhesive dries, small clumps form and can be dragged through the film.
3. Once evenly coated, dry the Lascaux with a hair dryer. As the adhesive dries, it changes in appearance from opaque white to milky to crystal clear.
4. Lay a piece of Japanese paper on top of the dry adhesive, and reactivate the Lascaux with heat from a household iron at low to medium heat (no steam) through a piece of silicon release paper.
5. Once the paper is adhered to the Lascaux film, transfer it to another area of the table to cool. Once cool, peel away the polyester film to reveal the adhesive-coated Japanese paper.
6. Drop the Lascaux-coated Japanese paper adhesive-side-down onto the verso of the primary support. Reactivate the adhesive from the verso with an iron through a piece of silicon release paper.
7. Once cool, trim the excess lining paper.
8. Losses to the original support can be filled with toned Japanese paper from the recto. Fashion inserts to fit each loss and then attach them to the lining paper from the recto by reactivating the underlying Lascaux adhesive with a tacking iron at medium heat through silicon release paper.

The lining will provide overall reinforcement to a fragile paper support, in spite of hydrophobic adhesive residues or media sensitivity, without creating tidelines or causing planar distortions.

#### PRESSURE-SENSITIVE MENDING STRIPS AND LINING SUPPORTS

Using Lascaux 360 HV rather than 498 HV will result in mending strips or lining supports with a dry, but tacky, adhesive film. The tacky adhesive film works as a pressure-sensitive adhesive. The resulting mending strips and lining supports can be positioned and repositioned, then adhered to the primary support with pressure, rather than using heat or solvent.

##### Procedure:

1. Humidify the appropriate mending/lining paper overall by lightly spraying the paper with deionized water while supported on a piece of polyester film. Humidification of the paper will help to prevent the formation of cockles and creases when it is placed in contact with the wet adhesive.
2. Apply a thin and even layer of Lascaux 360 HV onto a piece of silicon coated polyester film. Silicon coated polyester is recommended to help facilitate separation of the mending strips from the polyester film.
3. While the Lascaux 360 HV is still wet, drop the humidified paper on the surface of the adhesive while supported on the polyester film. The paper can be gently brushed into contact with the adhesive through the polyester film. The top piece of polyester film can then be removed from the surface of the paper.
4. Thoroughly dry the Lascaux 360 HV with a hair dryer through the paper while supported by the silicon coated polyester film.
5. Once dry, the silicon coated polyester can be removed from the Lascaux-coated paper.
6. Position the Lascaux-coated paper accordingly over the verso of the primary paper support. Press the lining paper into contact with the object. Trim excess lining paper. To properly adhere a lining, apply even, moderate weight overall in a press or under glass and weights.

If a thin Japanese paper, such as Tengujo, is selected, the adhesive will penetrate the paper support, thereby creating a double-sided adhesive sheet. If a thicker paper is selected, such as Sekishu, a single-sided adhesive sheet will be created. The paper sheet can be used for lining or cut into mending strips. Strips are easily cut before the silicon coated polyester film is removed.

#### FILLS FOR SPRUNG BREAKS IN RIGID SUPPORTS

A mixture of Lascaux 360 HV with 498 HV and pigments can be used as a toned fill material for rigid, hydrophobic supports with sprung breaks. Gaps pose both structural and aesthetic problems: a sprung break could promote additional physical damage, and the interruption of an image tends to be visually distracting. When working with laminate supports, such as photo buttons, or those that cannot be washed, the formation of tidelines may be a concern as moisture or solvent from a fill material moves laterally into the primary support.

##### Procedure:

1. Combine equal parts Lascaux 360 and 498 HV with pigments to approximate the tone of the support. The ratio is approximately 2 parts Lascaux 360 HV: 2 parts 498 HV: 1 part pigment.
2. Thoroughly mix the ingredients and then brush the mixture onto a piece of silicon coated polyester film. Brush the mixture in multiple directions until evenly distributed and then dry it with a hair dryer.
3. Once dry, score a small rectangular section of the dried pigmented Lascaux film with the tip of a scalpel carefully, so as not to cut through the polyester.

4. With the aid of a microspatula, separate the edge of the scored area and fold it onto itself.
5. Roll the folded edge with a finger to form a coil. The length and diameter of the coil is dependent upon the amount of Lascaux that is rolled. The 360 HV provides the tack needed for the Lascaux film to stick to itself, allowing it to form and hold its shape, and the 498 HV hardens enough to prevent it from acting as a pressure sensitive adhesive. The elasticity of the Lascaux allows the coil to be stretched to fit the narrowest portions of a break and compressed or folded onto itself to bulk and fill the widest apertures of a gap.
6. Fit the pigmented Lascaux coil into the gap using a pair of fine tweezers.
7. Once in place, activate and smooth the coil with a warm tacking iron set to 180°F through a piece of silicon coated polyester film. By warming through polyester film, the fill takes on a slick surface.
8. Excess Lascaux is easily cleaned with any number of solvents on a swab; of course, this necessitates solubility tests prior to treatment.
9. The addition of pigment creates a base color for fills, and the fills readily accept acrylic paint for additional inpainting. Because the Lascaux is dried before it is applied, it precludes the formation of tidelines or discoloration that would otherwise be caused by lateral movement of water or solvents between layers, coatings, or backings. The malleability of the Lascaux lends itself to narrow, wide, and varying losses. The Lascaux fills also offer additional structural support by reinforcing the edges of a sprung break from the recto. And the elasticity of the Lascaux would benefit the support if it were to be flexed during handling or if the fragments were to experience differential expansion and contraction. Fills can be mechanically removed with a pair of fine tweezers or with the aid of minimal heat or solvent. If the edges of the loss are delaminating or flaking, the appropriate consolidant should be applied beforehand. The consolidant would help to stabilize the support while providing a barrier layer between the fragile support and the fill.

#### NOTE

1. [www.lascaux.ch/pdf/en/produkte/restauro/2\\_adhesives\\_adhesive\\_wax.pdf](http://www.lascaux.ch/pdf/en/produkte/restauro/2_adhesives_adhesive_wax.pdf) (accessed 08/15/10)

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SAMANTHA SHEESLEY

Paper Conservator

Conservation Center for Art & Historic Artifacts

Philadelphia, PA

samsheesley@hotmail.com