

Thanks to our generous conservation colleagues who contributed their opinions and experience. Special thanks to Jan Paris, whose curiosity and encouragement got us started.

ADVANTAGES	Successfully treated originals
Low- or no-moisture: suitable for water-soluble and water-reactive media; avoid distortion + tide lines; avoid reactivating mold damage	Iron-gall ink; copper-based media (Islamic mss, verdigris); brittle paper; art on paper with water-soluble media; colored papers; historic textiles; mold damaged or weak papers; Chinese papers (rubblings, books); transparentized papers; copy press books; thin papers
Customizable: your choice of repair sheet; pre-coating makes it possible to use a very thin mending paper (can't be pasted out, too hard to handle in wet-floppy state); can get very transparent mends	Double-sided manuscripts and art on paper
Speed: quick application and drying time	Circulating collections, batch mending projects; stabilization for large-scale digital projects; photographs mounted on boards
Portable: few tools needed, very little mess	Traveling exhibits and loans, on-site treatment
Reversibility: easy short-term removal lends itself to temporary applications	Leather spines; bridge mends and facings
Custom toning: before coating, after coating, even after mending	Leather and parchment bindings
Compatible: repair is aesthetically or materially compatible with original	Parchment texts and bindings; original pressure sensitive tape; short-fibered paper, clay-coated paper

DISADVANTAGES	How to mitigate:
Strength or flexibility of the repair (some are too strong/inflexible, some are not strong enough)	Experiment with adhesive type, dilution, preparation method, and with repair sheet thickness; if having trouble sticking, gel up the adhesive layer in damp pack or chamber
Undesirable plastic or sparkly look	Gel up the adhesive layer completely during application; experiment with plastic sheet that you are preparing on (i.e., matte polyester drafting film rather than shiny polyester)
Time & complication of pre-coating the repair material	Weigh it against time saved in application
Staining/tidelines are possible from in situ liquid application	Test application method on small area of original; avoid in situ application with originals likely to stain
No feathered edges	Pin tear; use a thinner repair sheet that will blend in
Inconsistent application of adhesive can make portions of the pre-coated sheet useless	Experiment with screening (window or silk-screens), different brushes; reconsider for other application use
Original has solvent sensitivity	Stick with cellulose ethers and wheat starch paste because long-term reversibility of acrylics isn't proven
Repair more dimensionally stable than original	In storage conditions with dramatic RH fluctuations, stick with thinner repairs made with cellulose ethers, which discourage biological attack
Adhesive aging characteristics and long-term reversibility questionable	See forthcoming CCI research

The following information is based on what pre-coated repair materials our colleagues reported preparing and using, and is not necessarily endorsed by the authors.

ADHESIVES	PREPARATION GUIDELINES	REACTIVATION METHOD
Methyl cellulose (A4M 4% and cooked Aytex P wheat starch paste thinned to skim milk, mix both and thin to yogurt consistency with water (O'Loughlin method))	<ul style="list-style-type: none"> • Brush onto (matte) polyester film • Spray mist repair paper with water (except Berlin) • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in humidity chamber or damp pack • Water or 1:1 water/alcohol (low-moisture)
Sodium carboxymethyl cellulose (Aqualon Cellulose Gum CMC 7H3SF PH) 4% in water (Baker method)	<ul style="list-style-type: none"> • Brush onto (matte) polyester film • Mist repair paper (except Berlin) • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in humidity chamber or damp pack • 1:1 water/alcohol (low-moisture)
Methyl cellulose (Dow A4M), 2% to 5% in water (Wagner method)	<ul style="list-style-type: none"> • Brush onto (matte) polyester film • Mist repair paper (except Berlin) • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in humidity chamber or damp pack • 1:1 water/alcohol (low-moisture)
Isinglass 10% in water	<ul style="list-style-type: none"> • Brush onto (matte) polyester film • Drop repair sheet (fish intestine, goldbeaters skin or leather) onto adhesive • Let air dry 	<ul style="list-style-type: none"> • 1:1 water/alcohol (low-moisture)
Hydroxypropyl cellulose (Klucel-G), 2-5% in water	<ul style="list-style-type: none"> • Brush onto (matte) polyester film • Mist repair paper (except Berlin) • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol; for very thin tissues, reactivate with 2% Klucel-G in alcohol to avoid rinsing out the coating
	OR	
Lascaux 498HV, thinned 2:1 up to to 4:1, water:Lascaux	<ul style="list-style-type: none"> • Brush thinned adhesive onto silicone release film or mat • Continue to brush until stops beading up (~2 minutes) • Mist repair paper • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
Lascaux 498HV, straight (thicker repair papers)	<ul style="list-style-type: none"> • Squeegee adhesive through silkscreen onto silicone release film; rinse • Mist repair paper and adhesive • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat

Adhesive Pre-Coated Repair Materials

Priscilla Anderson and Sarah Reidell

Book and Paper Group, LCCDG and ACDG

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ADHESIVES	PREPARATION GUIDELINES	REACTIVATION METHOD
Lascaux 498HV and 360HV mix	<ul style="list-style-type: none"> • Prepare as for Lascaux 498HV thinned or straight when you want more elasticity or flexibility. 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
Lascaux 360HV, straight (Sheesley method)	<ul style="list-style-type: none"> • Pipe adhesive onto repair paper, distribute adhesive between two sheets of silicone release mylar; remove top sheet • Let air dry with a tray to cover so no dust contamination 	<ul style="list-style-type: none"> • Tacky at room temperature • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
Texicryl 13-002, thinned 1:1 with water	<ul style="list-style-type: none"> • Brush thinned adhesive onto silicone release film • Continue to brush until stops beading up • Mist repair paper • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
BEVA 371 film (1-mil)	<ul style="list-style-type: none"> • Heat-seal directly onto repair paper 	<ul style="list-style-type: none"> • Heat
BEVA 371 solution	<ul style="list-style-type: none"> • Spray the BEVA solution from an aerosol 	<ul style="list-style-type: none"> • Heat
	OR	
	<ul style="list-style-type: none"> • Coat repair paper with a solution of BEVA film and 1 or 2% petroleum benzine / VM&P naphtha 	
“Modified” LC Heat-Set (Rhoplex AC 73 and Rhoplex AC 234)	<ul style="list-style-type: none"> • Mix adhesives (1:1) and thin 1:1 with deionized water • Brush thinned adhesive (1:1 mix with deionized water) onto silicone release film • Continue to brush until stops beading up • Mist repair paper • Drop repair paper onto adhesive • Let air dry 	<ul style="list-style-type: none"> • May pre-swell in solvent chamber or damp pack • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
Toning Crompton coated tissue (commercially manufactured)	<ul style="list-style-type: none"> • Tone with 1:5 mix of cellulose ether and deionized water, and liquid acrylic paints • Brush or spray application 	<ul style="list-style-type: none"> • Alcohol
		OR
		<ul style="list-style-type: none"> • Heat
Filmoplast R (commercially manufactured)		<ul style="list-style-type: none"> • Heat

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For More Information Contact:

PRISCILLA ANDERSON
Baker Library Historical Collections
Harvard Business School
email: priscilla_anderson@hbs.edu

SARAH REIDELL
Barbara Goldsmith Preservation Division
New York Public Library
email: sarah_reidell@nypl.org