

# Problem Solver

This guide is designed to help identify and prevent potential problems you may encounter using WEST SYSTEM Epoxy. If the solutions described here do not resolve the problem, call the Gougeon Brothers technical staff, 866-937-8797.

## The epoxy mixture has not cured after the recommended cure time has passed.

POSSIBLE CAUSES	SOLUTION
Off ratio—too much or too little hardener will affect the cure time and thoroughness of the cure.	<ol style="list-style-type: none"> <li>1. Remove epoxy. Do not apply additional material over non-curing epoxy. See Removing epoxy, page 22.</li> <li>2. Check correct number of pump strokes—use equal strokes of resin and hardener. DO NOT add extra hardener for faster cure!</li> <li>3. Check for correct pump (5:1 or 3:1 ratio).</li> <li>4. Check pump metering ratio (see pump instructions). See Dispensing, page 25.</li> </ol>
Low temperature—epoxy mixtures cure slower at low temperatures.	<ol style="list-style-type: none"> <li>1. Allow extra curing time in cool weather.</li> <li>2. Apply heat to maintain the chemical reaction and speed the cure. Raise the temperature above the hardener's minimum recommended cure temperature. (NOTE! Unvented kerosene or propane heaters can inhibit the cure of epoxy and contaminate epoxy surfaces.)</li> <li>3. Use a faster hardener, designed to cure at lower temperatures. See Controlling Cure Time, page 24.</li> </ol>
Insufficient mixing.	<ol style="list-style-type: none"> <li>1. Remove epoxy. Do not apply additional material over non-curing epoxy. See Removing Epoxy, page 22.</li> <li>2. Mix resin and hardener together <b>thoroughly</b> to avoid resin rich and hardener rich areas.</li> <li>3. Add fillers or additives after resin and hardener have been thoroughly mixed. See Mixing, page 25.</li> </ol>
Incorrect products.	<ol style="list-style-type: none"> <li>1. Remove epoxy. Do not apply additional material over non-curing epoxy. See Removing epoxy, page 22.</li> <li>2. Check for proper resin and hardener. Resin will not cure properly with other brands of hardener or with polyester catalysts.</li> </ol>

## Bond Failure

POSSIBLE CAUSES	SOLUTION
Insufficient cure.	See above.
Resin starved joint—epoxy has wicked into porous surfaces leaving a void at the joint.	Wet out bonding surfaces before applying thickened epoxy. Re-wet very porous surfaces and end grain. See Two-step Bonding, page 30.
Contaminated bonding surface.	Clean and sand the surface following the procedure on page 28. Sand wood surfaces after planing or joining.
Bonding area too small for the load on the joint.	Increase bonding area by adding fillets, bonded fasteners or scarf joints.
Too much clamping pressure squeezed epoxy out of the joint.	Use just enough clamping pressure to squeeze a small amount of epoxy from the joint. See Clamping, page 30.

## Clear coating turned cloudy.

POSSIBLE CAUSES	SOLUTION
Moisture from condensation or very humid conditions reacts with components in uncured hardener.	<ol style="list-style-type: none"> <li>1. Apply moderate heat to partially cured coating to remove moisture and complete cure. See out-gassing caution, page 23.</li> <li>2. Use 207 Special Clear Hardener for clear coating applications and for bonding thin veneers where epoxy may bleed through to the surface.</li> </ol>
Entrapped air from aggressive roller application.	<ol style="list-style-type: none"> <li>1. Apply coating at warmer temperature—epoxy is thinner at warmer temperatures.</li> <li>2. Apply epoxy in thin coats.</li> <li>3. Apply moderate heat to release trapped air and complete cure. See Caution, page 23.</li> </ol>

## Waxy film appears on surface of cured epoxy.

CAUS.	SOLU.
Amine blush formation is a typical result of the curing process.	<ol style="list-style-type: none"> <li>1. Blush is water soluble. Remove with water. See Special preparation—Cured Epoxy, page 28.</li> <li>2. Use 207 Special Clear Hardener. 207 Hardener is blush free.</li> </ol>

*Runs or sags in coating.*

POSSIBLE CAUSES	Epoxy applied too thickly.	SOLUTION	1. Use 800 Roller Covers and roll the coating out into a thinner film. A thin film will flow out much smoother than a thicker film after it is tipped off with the foam roller brush.
	Coating curing too slowly.		2. Warm the epoxy to thin it or apply the coating at a warmer temperature. See Barrier Coating, page 36.
POSSIBLE CAUSES		SOLUTION	1. Apply the coating at a warmer temperature.
			2. Warm the resin and hardener before mixing to speed the cure in cool weather.
			3. Switch to a faster hardener if possible. See Controlling Cure Time, page 24.

*Fairing Compound (epoxy/407 or 410 mixture) sags and is difficult to sand.*

CAUS.	Fairing material not thick enough.	SOLU.	Add more filler to the mixture until it reaches a “peanut butter” consistency—the more filler added, the stiffer and easier it will be to sand.
-------	------------------------------------	-------	---

*Thick fairing compound (epoxy/407 or 410 mixture) sags.*

CAUS.	Fresh epoxy wet-out won't support weight of fairing.	SOLU.	Allow the wet-out coat to gel before applying the fairing material to vertical surfaces. See Fairing, page 34.
-------	--	-------	--

*Paint, varnish or gelcoat will not set up over epoxy.*

POSSIBLE CAUSES	Epoxy not completely cured.	SOLUTION	Allow the final epoxy coat to cure thoroughly. Allow several days if necessary for slow hardeners at cooler temperatures. Apply moderate heat to complete the cure if necessary. See Controlling Cure Time, page 24.
	Coating incompatible with epoxy.		1. Use a different type of paint. Some paints and varnishes may be incompatible with some hardeners. If unsure, test for compatibility on a coated piece of scrap material.
	Epoxy surface not thoroughly prepared.		2. Use 207 Hardener. It is compatible with most paints and varnishes.
			Remove the amine blush and sand the surface thoroughly before applying paints or varnishes. See Final Surface Preparation, page 37.

*Epoxy became very hot and cured too quickly.*

POSSIBLE CAUSES	Batch too large, or left in mixing pot too long.	SOLUTION	1. Mix smaller batches.
	Temperature too warm for the hardener.		2. Transfer the mixture to a container with more surface area, such as a paint roller tray, immediately after mixing. See Controlling Cure Time, page 24, Dispensing and Mixing, page 25.
	Application too thick.		Use 206 Slow or 209 Extra Slow Hardener in very warm weather.
			Apply thick areas of fill in several thin layers.

*Bubbles formed in coating over porous material (bare wood or foam).*

CAUSES	Air trapped in the material escapes through coating (out-gassing) as the material's temperature is rising.	SOLUTION	1. Coat the wood as its temperature is dropping—after warming the wood with heaters or during the later part of the day.
			2. Apply a thinner coat, allowing air to escape easier.
			3. Tip off the coating with a roller cover brush to break bubbles. See Caution, page 23.

*Pinholes appear in epoxy coating over abraded fiberglass or epoxy.*

CAUSES	Surface tension causes epoxy film to pull away from pinhole before it gels.	SOLU.	After applying epoxy with an 800 Roller Cover, force epoxy into pinholes with a stiff plastic or metal spreader held at a low or nearly flat angle. Re-coat and tip off coating after all pinholes are filled.
--------	---	-------	--

*Fish-eyeing in coating*

CAUSES	Contamination of the coating or surface or improper abrasion for the coating.	SOLUTION	1. Be sure mixing equipment is clean. Avoid waxed mixing containers.
			2. Be sure surface is properly prepared. Use proper grit sandpaper for the type of coating you are applying. (See coating manufacturer's instructions for proper surface preparation.) After surface is prepared, avoid contamination—fingerprints, exhaust fumes, rags with fabric softener (silicone). Coat within hours of preparation. After wet sanding, rinse water should sheet without beading (beading indicates contamination). Wipe with appropriate solvent and re-rinse until rinse water no longer beads.

*Hardener has turned red after several years storage.*

CAUS.	Moisture in contact with hardener and metal container.	SOLU.	Red color is a normal condition. It will not affect epoxy handling or cured strength. Avoid using hardener for clear coating or exposed areas where color is not desired.
-------	--	-------	---