PRODUCT BULLETIN

September 2023

PATCHAID® 970X901

PATCHAID®

DESCRIPTION

PATCHAID® 970X901 is a pre-promoted, resin and monomer solution that when mixed with gel coat improves the working properties for spray patches. Use of PATCHAID® 970X901 lowers the viscosity of the gel coat, thus minimizing orange peel and reducing sanding time. Use of PATCHAID® 970X901 will also improve final cure and reduce surface tackiness. PATCHAID® 970X901 is light-stabilized to minimize differences in weathering between the original gel coat surface and the patch.

As with any pre-promoted polyester, patch mixtures will require the addition of an appropriate amount and type of methyl ethyl ketone peroxide initiator to cure.

NOTE: Patching materials for open mold processing are exempt from the MACT standard. The Environmental Protection Agency National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing (NESHAP), 40 CFR Part 63, lists exemptions in subpart 63.5698, paragraph (d) (2) which states: "Pigmented, clear, and tooling gel coat used for part or mold repair and touch up. The total gel coat materials included in this exemption must not exceed 1 percent by weight of all gel coat used at your facility on a 12-month rolling-average basis."

BENEFITS & FEATURES

- Low color, for excellent color match between the gel coat and patch
- Low viscosity, for easier spray and less orange peel
- Long working time, advantageous for repairing large defects and for mold resurfacing (topcoat)
- Light stabilized, to minimize discoloration of patches made using clear gel coats and pigmented gel coats
- Good surface cure, which minimizes sandpaper "gumming"
- Excellent sanding and buffing, due to proprietary additives and less orange peel

PROPERTIES – LIQUID

Property(1)	Unit	970X901
VOC	%	59
Viscosity(2)	cps	53
Gel Time(3)	minutes	22
Weight per Gallon	lbs/gal	8.5
Flash Point (Seta Closed Cup)	°C/°F	31/88

1) All properties at 25°C/77°F unless otherwise noted
2) Brookfield Viscometer LVF Spindle #1 at 60 RPM
3) 2.0% Arkema Luperox® DDM-9

PROPERTIES - OTHER

Gel Time of PATCHAID and Typical Mixture (in % or cc's):

Gel Coat / ARMORCOTE®	70
PATCHAID®	30
Initiator	2.0
Cup Gel Time	5 minutes longer than gel coat
Sanding Time	1-2 hours

APPLICATION

No matter how much care is taken in producing parts, some will have defects and require repair. The source of defects should always be investigated to determine if they can be prevented. Defect prevention is nearly always more cost effective than continuously performing repairs. In addition, determine if a repair is absolutely needed. Repairing the exterior coating will result in some compromise of its appearance and field performance (weathering, blush resistance, etc.). The level of compromise depends on the type of coating and the quality of repair.

1. Identify the area to be repaired. Locating repair edges at design lines, break lines or other part features that visually break up the part surface can help hide patches.

2. Prepare the area to be patched by sanding with 150-grit to 320-grit sandpaper. Remove sanding dust. Wipe the area with ethyl acetate, methyl ethyl ketone or other suitable solvent to eliminate wax, oil or other contaminants. Be sure that the area to be patched is clean and dry before proceeding. Mask the area surrounding the patch area to prevent overspray from accumulating on part.

3. Shake the PATCHAID® 970X901 before using. This is necessary to provide uniform mixing. Some active ingredients can settle out and can be easily reincorporated by shaking.

4. When repairing production parts, obtain a sample of the same batch of gel coat that was used to fabricate the part being repaired. Failure to use the same batch will almost certainly result in an off-color patch. Make sure the gel coat has been well mixed prior to obtaining the sample. Mixing is needed to obtain a good color match and also for spray properties. See the gel coat technical datasheet for mixing instructions.

5. Mixing patching material using the mix ratios as follows:

   Minimum Mix (50 cc's)

Gel Coat	35 cc's
PATCHAID® 970X901	15 cc's
Initiator	1 cc
	40 – 50 drops

Typical Mix (100 cc's)

Gel Coat	70 cc's
PATCHAID® 970X901	30 cc's
Initiator	2 cc's

Mixtures can be scaled up by multiplying by 1 for each additional 100 cc's, i.e. 500 cc's times 5, 1000 cc's times 10.

6. Spray with a Binks #115, DeVilbiss EGA touch-up gun, or aerosol canister (appropriate PATCHAID®). Use 25 to 50 psi to achieve acceptable atomization. Equipment requirements will vary with the reduction. Using 970XJ037, reductions of 50/50 can be sprayed through an aerosol canister, but the viscosity will be lower, which could cause sagging, and the hiding power will be reduced.

7. Some colors, clears, or types of gel coats may require the patch to be oversprayed with PVA, wet-on-wet, to achieve complete tack-free surface. An alternate would be to initiate PATCHAID® 970X901 itself with 2.0% initiator, then lightly overspray (2 mils) the still-wet patch.

8. Allow the patch to cure before sanding. Cure time will vary with color and gel coat. Fast cure gel coats may be ready for sanding in 30-60 minutes. Others may require longer cure. The best test for cure is sanding the patch. If the sandpaper becomes gummed or loaded, then the patch needs additional cure time. Another check for film cure is the "thumbnail" test. If the patch has not cured sufficiently, a thumbnail pressed into the patch will leave an impression. Patch cure may be accelerated by using a heat gun or infrared lights. For best results:

    a. Wait for several minutes after spraying the patch before applying heat. Heat the patch slowly and evenly. If heated too quickly, only the surface will be cured and the patch will be unacceptable.

    b. Maintain the surface temperature between 100°F and 120°F. At this temperature, the surface should feel slightly warm to the touch. As described above, cure time will vary with color and gel coat. One hour at temperature should be sufficient for most gel coats.

    c. Note: Do not overheat the part. If the temperature is too high, the color of the patch may be unacceptable. High temperatures can also cause surface distortion and fiber pattern near the patched area.

    d. Let the patch cool to room temperature before sanding and buffing.

9. Note: Do not use electrical appliances around flammable materials, including acetone and styrene-containing products.

10. Sand the patch using a sequence of increasingly finer grit sandpapers. A recommended sequence is 400-grit, 600-grit and 800-grit. For best results sanding should be done by hand with the 400-grit step done dry to remove any orange peel and the 600-grit to 800-grit steps done wet. A dual action sander can also be used. Wipe off sanding dust in between each step. After sanding with 800-grit sandpaper, use water to remove all loose dust and grit.

11. Buff gloss back using appropriate polishing compounds.

Refer to Polynt's Composites Applications Guide ("Cookbook") for equipment and application recommendations. Each user must determine the suitability of this product to his/her particular mode of operation and intended end-use application. A Polynt representative will be available to assist in the proper selection of all Polynt products available for commercial use.

CURE

Spray patch mixtures (gel coat and FC PATCHAID® 970X901) require the addition of MEKP peroxide for cure. Typical MEKP peroxides include Arkema Luperox® DDM-9, United Initiators NOROX® MEKP-9 and NOROX® MEKP-9H, Akzo Nobel CADOX® L-50a and CADOX® D-50. These peroxides are expected to yield similar performance. Peroxides such as Luperox® DHD-9, NOROX® MEKP-925 and NOROX® MEKP-925H may yield slightly shorter gel and cure times.

The recommended MEKP peroxide range for patching is 2.0% to 3.0%. A typical patch will be ready to sand in one to two hours under ideal conditions. However, sanding times can vary greatly depending on the cure characteristics of the gel coat. Patches made with short gel time gel coats will require shorter cure times prior to sanding than longer gel time gel coats.

Additional factors affecting sanding time include: level of PATCHAID® 970X901; age of materials; temperature of air, part and material; humidity; air movement; and initiator amount and type.

Do not make patches when temperature conditions are below 70°F, as curing may be adversely affected.

CAUTION

Always shake or mix before using. This assures a uniform mixture that will perform the same, from first patch to last.

If PATCHAID® 970X901 has been allowed to become cooler than 70°F, it could become cloudy and, at this point, would no longer be a homogenous solution. The material should be brought to room temperature and returned to its original appearance before using. Mildly agitate the PATCHAID® 970X901 before use.

Secure the lid after each use. An open container will lose styrene and pick up dirt. Both can have negative effects on patches.

Initiated masses get very hot as they cure. Polynt Composites recommends excess initiated patching materials be placed in a bucket of water.

Using a heat source such as heat gun or infrared light to speed cure takes special care:

1. Use the heat source only where it will not be a fire hazard. Electrical appliances are an ignition source around flammable materials, including acetone and styrene-containing products.

2. The spray patch must be gelled and partially cured before heat is applied. Un-gelled patches are a fire hazard. In addition, the heat source will start to gel and cure from the surface down. This can produce unacceptable results.

3. Heat will speed up cure, but it must be done right for best results. The patch needs to be heated slowly and evenly.

    a. If heated too fast, only the surface will be cured. That can result in unacceptable patches.

    b. If the temperature is too high, the color of the patch may be unacceptable. Generally, surface temperature should be slightly warm to the touch. This is about 110°F and is sufficient to speed the cure.

4. Use of heat can cause additional surface distortion and fiber pattern near the patched area.

Do not add any material other than gel coat and a recommended initiator to these products without the advice of a Polynt representative.

SHELF LIFE & STORAGE

The shelf life of PATCHAID® 970X901 is 90 days from the date of manufacture from Polynt. To maximize usage life and maintain optimum properties, resins and gel coats should be stored in the original closed container at temperatures below 23°C/73°F and away from ignition sources and sunlight. Keep containers sealed to prevent moisture pick-up and monomer loss.

SAFETY & WARRANTY

To receive a copy of our safety and warranty information, please email safetyandwarranty@polynt.com.