POLYCOR® STYPOL®

DS-70D
PATCHAID®

DESCRIPTION:

CCP produces four PATCHAID® spray formulas; all are designed to improve the working properties of traditional gel coat spray patches. They achieve that by thinning the material, minimizing orange peel, speeding the cure, and reducing surface tackiness. Usually, patches do not weather as well as the gel coat surface, but to minimize potential patch discoloration, CCP PATCHAID® products are light stabilized.

CCP PATCHAID® mixed with gel coat will provide these properties:

- Low color, which results in excellent color patches.
- Low viscosity, for easier spray and less orange peel.
- Very fast cure (appropriate type), allowing for fast working time and quicker repairs.
- Long working time (appropriate type), advantageous for repairing large defects and for mold resurfacing.
- 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.
- Easy mold resurfacing. See CCP's PB-5 bulletin on mold making for specific instructions for mold resurfacing with 970X901.and 945CJ007 patching thinner.

PATCHAID® products and appropriate application methods are:

970X901 SLOW PATCHAID®, resin-based for aerosol bottles and conventional touch-up spray guns.
970XJ037 SPEED PATCHAID®, resin-based for aerosol bottles and conventional touch-up spray guns.
970X900 SPEED PATCHAID®, resin-based for conventional touch-up spray guns.
970XJ166 SPEED PATCHAID®, resin-based for conventional touch-up spray guns for MC (MACT compliant) gel coats.

The 970X901 and 970XJ037 were formulated specifically so acetone would not be necessary when using aerosol spray bottles.

For best surface cure (less sticky), 970XJ037 is recommended for all products, especially 951's, 953's, and 96X series.

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

O2/04 (Supersedes 06/02)

COOK COMPOSITES AND POLYMERS
P.O. Box 419389, Kansas City, MO 64141-6389
(816) 391-6000 Fax: (816) 391-6215
www.ccponline.com

TYPICAL PROPERTIES (at 77°F):

These values may or may not be manufacturing control criteria; they are listed for a reference guide only. Particular batches may not conform exactly to the numbers listed because storage conditions, temperature changes, age, testing equipment (type and procedure) can each have a significant effect on the test results. PATCHAID® products with properties outside of these ranges can perform acceptably.

Test	**Values**			
	970X901	**970XJ037**	**970X900**	**970XJ166**
Viscosity, Brookfield LVF Spindle @ 60 rpm	#1 18 - 88 cps	#1 18 - 88 cps	#2 75 - 175 cps	#2 50 - 150 cps
Thixotropic Index 6/60	NA	NA	.9 - 2.9	1.5 - 2.5
Flash Point	88°F	88°F	88°F	88°F
Hazardous Air Pollutants	See MSDS for amounts			
Volatile Organic Compounds	58 - 60%	57.5 - 59.5%	50.7 - 52.7%	53.1 - 55.1%
Weight per Gallon	8.36 - 8.66 lbs.	8.35 - 8.65 lbs.	8.61 - 8.91 lbs.	8.23 - 8.53 lbs.
Gel Time of PATCHAID® with 2.0% MEKP	17 - 27 minutes	4 - 9 minutes	5 - 13 minutes	5 - 10 minutes
Gel Time of PATCHAID® and typical mixture (in % or cc's):				
Gel Coat/ARMORCOTE®	70	70	70	70
PATCHAID®	30	30	30	30
Catalyst	2.0	2.0	2.0	2.0
Cup Gel Time	5 minutes longer than gel coat	5 minutes shorter than gel coat	5 - 10 minutes	5 minutes shorter than gel coat
Sanding Time	1 - 2 hours	30 - 45 minutes	45 - 60 minutes	45 - 60 minutes

Refer to the MSDS for handling precautions. MSDS's will be supplied automatically with the first order for material, and are available by product code upon request from CCP's Regulatory Department, or at www.ccponline.com.

RECOMMENDED PROCEDURE:

1. Prepare the repair area by scuff sanding until no glossy surface remains. Avoid sandpaper coarser than 320 grit, as the deep scratches may affect the patch quality.
2. Shake the PATCHAID® before using. This is necessary to provide uniform mixing. Some active ingredients can settle out and can be easily re-incorporated by shaking.

Minimum Mix (50 cc's)	
Gel Coat	35 cc's
PATCHAID®	15 cc's
Catalyst	1 cc
	40 -50 drops
Typical Mix (100 cc's)	
Gel Coat	70 cc's
PATCHAID®	30 cc's
Catalyst	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.

4. Spray with a Binks #115, DeVilbiss EGA touch-up gun, or aerosol canister (appropriate PATCHAID®). Use 25 to 50 psig to achieve acceptable atomization. Equipment requirements will vary with the reduction. Using either 970X901 or 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.
5. Some colors, clears, or types of gel coats may require the patch to be over-sprayed with PVA, wet-on-wet, to achieve complete tack-free surface. An alternate would be to catalyze PATCHAID® itself with 2.0% catalyst, then lightly overspray (2 mils) the still-wet patch.
6. Allow the patch to cure before sanding. A *wax spew* must form before the film is sanded. Another check for film cure is the "thumbnail test"; the patch has not cured sufficiently if a thumbnail will leave an impression. Gumming and loading of the sandpaper indicates more time is needed. Fast gel time/cure gel coats may be ready for sanding in 30 minutes to an hour. Others may require a longer cure. Cure time will vary with color, gel coat, and PATCHAID® so the best test for cure is to determine how much gumming, if any, occurs to the sandpaper.
7. Accelerating cure of the patch can be accomplished by using a heat gun or infrared lights. Best results are obtained by:
   a. Waiting for the patch to gel before using heat gun.
   b. Keep the gun moving. Don't concentrate the heat!
   c. Only warm to 100 to 110°F, or just WARM to the touch.
   d. Let the patch cool to room temperature before sanding and buffing.
   (Also see heat precautions on page 5.)
8. Sand with 320 to 400 (coarsest) grit sandpaper. Wet-sand scratches out with 600, or finer, paper.
9. Buff gloss back using appropriate polishing compounds.

(Also see PB-2, Patching Data Sheet.)

NOTE: Because of the dilution effect of adding a PATCHAID®, some reduction in hide will occur. This is normal and will not affect the quality of the patch.

CURE:

It is recommended that gel time be checked in the customer's plant because age, temperature, humidity and catalyst will produce varied gel times. All data referencing gel or cure refers specifically to ATOFINA Luperox® DDM-9 catalyst. Norac NOROX MEKP-9 and NOROX MEKP-9H, Akzo Nobel CADOX L-50a and CADOX D-50 are expected to yield similar performance. ATOFINA Luperox® DHD-9, NOROX MEKP-925 and NOROX MEKP-925H, and Crompton HP-90 may yield slightly shorter gel and cure times.

The recommended catalyst range is 1.5% to 2.5%. Ideal catalyst level is 2.0% at 77°F. Do not exceed 2.5%, nor fall below 1.5% catalyst for proper cure.

A typical patch will be ready to sand in 30 minutes to two hours under ideal conditions. Factors that will affect sanding time include: type of PATCHAID®; age of materials; gel and cure of the gel coat used; temperature of air, part and material; humidity; air movement; and catalyst, both amount and type.

Gel and sanding times can vary greatly, dependent upon cure characteristics of the gel coat. Short gel time materials decrease cure characteristics, whereas long gel time gel coats increase the gel and sanding times.

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

PRECAUTIONS:

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

If PATCHAID® 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® 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.

Catalyzed masses get very hot as they cure. CCP recommends excess catalyzed 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 <u>not</u> 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. BE CAREFUL: Do not get the part/patch too hot.

Do not add any material other than gel coat and a recommended catalyst to these products without the advice of a representative of Cook Composites and Polymers Company.

<u>STORAGE:</u>

Uncatalyzed PATCHAID® has a usage life of 60 days from date of manufacture when stored at 73°F or below in a closed, factory-sealed, opaque container and out of direct sunlight. The usage life is cut in half for every 20°F over 73°F.

<u>SHIPPING</u>:

This product is normally shipped in unlined one-gallon steel containers. Lined, five-gallon steel containers are available on request.

RS 02/04

POLYESTER SAFETY INFORMATION
(Revised 09/00, supersedes 06/92)

All sales of products manufactured by Cook Composites and Polymers Co. (CCP), and described herein, are made solely on condition that CCP's customers comply with applicable health and safety laws, regulations and orders relating to the handling of our products in the workplace. Before using, read the following information, and both the product label, and Material Safety Data Sheet pertaining to each product.

Most polyester products contain styrene. Styrene can cause eye, skin and respiratory tract irritation. Avoid contact with eyes, skin and clothing. Impermeable gloves, safety eyewear and protective clothing should be worn during use to avoid skin and eye contact. Wash thoroughly after use.

Styrene is a solvent and may be harmful if inhaled. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Extended exposure to styrene at concentrations above the recommended exposure limits may cause central nervous system depression causing dizziness, headaches or nausea and, if overexposure is continued indefinitely, loss of consciousness, liver and kidney damage.

Do not ingest or breathe vapor, spray mists or dusts caused by applying, sanding, grinding and sawing polyester products. Wear an appropriate NIOSH/MSHA approved and properly fitted respirator during application and use of these products until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapors, mists and dusts are below applicable exposure limits. Follow respirator manufacturer's directions for respirator use.

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B, "possibly carcinogenic to humans." This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement: Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene.

Styrene is classified by OSHA and the Department of Transportation as a flammable liquid. Flammable polyester products should be kept away from heat, sparks, and flame. Lighting and other electrical systems in the work place should be vapor-proof and protected from breakage.

Vapors from styrene may cause flash fire. Styrene vapors are heavier than air and may concentrate in the lower levels of molds and the work area. General clean air dilution or local exhaust ventilation should be provided in volume and pattern to keep vapors well below the lower explosion limit and all air contaminants (vapor, mists and dusts) below the current permissible exposure limits in the mixing, application, curing and repair areas.

If the label or Material Safety Data Sheet indicates lead or lead chromate is present, do not use on toys, furniture or surfaces that might be chewed by children. Wash hands thoroughly after using and before smoking or eating. Long-term overexposure by inhalation or ingestion of mists and dusts from products containing lead compounds and lead chromate can cause harmful effects to the urinary, blood, reproductive and nervous systems and may create risk of cancer. Use a respirator as explained in Paragraph 4 of this Information Sheet.

Some polyester products may contain additional hazardous ingredients. To determine the hazardous ingredients present, their applicable exposure limits and other safety information, read the Material Safety Data Sheet for each product (identified by product number) before using. If unavailable, these can be obtained, free of charge, from your CCP representative or from: CCP, P.O. Box 419389, Kansas City, MO 64141-6389; 816-391-6053.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention.

Polyester products have at least two components that must be mixed before use. Any mixture of components will have hazards of all components. Before opening the packages read all warning labels. Observe all precautions.

Keep polyester containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Emptied containers may retain hazardous residue. Do not cut, puncture or weld on or near these containers. Follow container label warnings until containers are thoroughly cleaned or destroyed

FOR INDUSTRIAL USE AND PROFESSIONAL APPLICATION ONLY. KEEP OUT OF REACH OF CHILDREN.

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WARRANTY, DISCLAIMER, AND LIMITATION OF LIABILITY

(Rev. 12/02, supersedes 06/01)

Seller warrants to Buyer that, at the time of shipment, the products sold hereunder shall meet Seller's then-applicable specifications for such product. Seller's specifications may be changed at any time without notice to Buyer. To assert a warranty claim, Buyer must give Seller notice in writing of the alleged failure of the product to conform to the applicable specifications (together with all identifying details, including the product code(s), description and date of purchase) within thirty (30) days of the date of shipment of the product to Buyer and, upon Seller's request, shall return the alleged nonconforming product. The failure of Buyer to assert a claim within such period shall be an admission by Buyer and conclusive proof that such product is in every respect as warranted and shall release Seller from all claims for damage or loss in respect of such product. **THE WARRANTY DESCRIBED HEREIN SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.** Without limiting the generality of the foregoing, the warranty provided above does not extend to damage, loss, or injuries caused by or in any way related to misuse, misapplication, abuse, improper handling or storage of the product; normal weathering (including but not limited to cracking and blistering); or any cause beyond the control of Seller. Seller further disclaims any and all liability for Buyer's decision to modify, amend or reject any recommendation set forth herein. Seller does not warranty or guarantee that implementation of any of the recommendations set forth herein constitute compliance with any federal, state or local laws or regulations. Final determination of the suitability of the product for the use contemplated, the manner of use, and whether the use infringes any patents is the sole responsibility of Buyer.

Buyer's sole and exclusive remedy against Seller shall be, at Seller's option, the replacement of the nonconforming product or refund of the purchase price. NO OTHER REMEDY SHALL BE AVAILABLE TO BUYER. In no event shall Seller be liable for lost profits, lost sales or business opportunity, downtime, claims of Buyer's customers, injury to person or property, or any incidental, consequential, punitive, or special damages, or for labor or other costs in connection with testing, replacing, or returning product, whether such claim is made in contract, tort, strict liability, negligence or any other legal theory.