



# PATCHAID®

## 970X900, 970XJ037, 970XJ166, 970XA014

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### Description

The PATCHAID® products covered in this bulletin are prepromoted, resin and monomer solutions that when mixed with gel coat improve the working properties for spray patches. Use of PATCHAID® lowers the viscosity of the gel coat minimizing orange peel. Use of Patchaid will also accelerate cure, and reduce surface tackiness. These CCP PATCHAID® products are light stabilized to minimized differences in weathering between the original gel coat surface and the patch.

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

- Low color, for excellent color match between the gel coat and patch.
- 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 *Composites Application Guide, Part Eight, Chapter IX*, on mold making for specific instructions for mold resurfacing with 945CJ007 patching thinner.

PATCHAID® products and appropriate application methods are:

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.
970XA014 PATCHAID®	88°F

The 970XJ037 was 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.



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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.”

**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**

	970XJ037	970X900	970XJ166	970XA014
Viscosity, Brookfield LVF Spindle #1 at 60 rpm	18 - 88 cps	#2 75 - 175 cps	#2 50 - 150 cps	#2 75 - 175 cps
Thixotropic Index 6/60	NA	0.9 - 2.9	1.5 - 2.5	0.9 - 2.9
Flash Point	88°F	88°F	88°F	88°F
Hazardous Air Pollutants	See MSDS for amounts			
Volatile Organic Compounds	57.5 - 59.5%	50.7 - 52.7%	53.1 - 55.1%	50.9 - 52.9%
Weight per Gallon	8.35 - 8.65 lbs.	8.61 - 8.91 lbs.	8.23 - 8.53 lbs.	8.56 - 8.86 lbs.
Gel Time of PATCHAID® with 2.0% MEKP	4 - 9 minutes	5 - 13 minutes	5 - 10 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 shorter than gel coat	5 - 10 minutes	5 minutes shorter than gel coat	5 minutes shorter than gel coat
Sanding Time	30 - 45 minutes	45 - 60 minutes	45 - 60 minutes	30 - 45 minutes



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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.ccpcompositesus.com](http://www.ccpcompositesus.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 reincorporated by shaking.

Prepare patching mix as follows:

<b>Minimum Mix (50 cc's)</b>	
Gel Coat	35 cc's
PATCHAID®	15 cc's
Catalyst	1 cc 40 – 50 drops
<b>Typical Mix (100 cc's)</b>	
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 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!

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- 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.)

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 refer to CCP's Composites Application Guide, 10<sup>th</sup> Edition, Part Four, Chapter VII. 6, page 113.)

**NOTE:** Because of the dilution effect of adding a PATCHAID<sup>®</sup>, 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 Luperox<sup>®</sup> DDM-9 catalyst. Syrgis NOROX<sup>®</sup> MEKP-9 and MEKP-9H, Akzo Nobel CADOX L-50a and CADOX D-50 are expected to yield similar performance. Luperox<sup>®</sup> DHD-9, NOROX<sup>®</sup> MEKP-925 and NOROX<sup>®</sup> MEKP-925H, and CHEMTURA 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<sup>®</sup>; 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<sup>®</sup> 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<sup>®</sup> 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 not be a fire hazard.** Electrical appliances are an ignition source around flammable materials, including acetone and styrene-containing products.

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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 CCP Composites Company.

## Storage

Uncatalyzed PATCHAID<sup>®</sup> has a usage life of 60 days from date of shipment from CCP 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.

## Data Sheets/MSDS

CCP data sheets and MSDS's are available in printable format at [www.ccpcompositesus.com](http://www.ccpcompositesus.com).

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Without limiting the generality of the foregoing, if any product fails to meet warranties mentioned above, Seller shall at Seller's option either replace the nonconforming product at no cost to Buyer or refund the Buyer the purchase price thereof. The foregoing is Buyer's sole and exclusive remedy for failure of Seller to deliver or supply product that meets the foregoing warranties. Seller's liability with respect to this contract and the product purchased under it shall not exceed the purchase price of the portion of such product as to which such liability arises. Seller shall not be liable for any injury, loss or damage, resulting from the handling or use of the product shipped hereunder whether in the manufacturing process or otherwise. In no event shall Seller be liable for special, incidental or consequential damages, including without limitations loss of profits, capital or business opportunity, downtime costs, or claims of customers or employees of Buyer. Failure to give Seller notice of any claim within thirty (30) days of shipment of the product concerned shall constitute a waiver of such claim by Buyer. Any product credit received by Buyer hereunder, if not used, shall automatically expire one (1) year from the date the credit was granted. Notwithstanding any applicable statute of limitations to the contrary, any action by Buyer relation to a claim hereunder must be instituted no later than two (2) years after the occurrence of the event upon which the claim is based. All the foregoing limitations shall apply irrespective of whether Buyer's claim is based upon breach of contract, breach of warranty, negligence, strict liability, or any other legal theory.

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### COMPOSITES SAFETY INFORMATION (October 2011)

All sales of products manufactured by CCP Composites US (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 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 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) reclassified styrene as Group 2B, "possibly carcinogenic to humans." This revised classification was 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 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 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.

Some 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 Composites US, 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.

Those 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 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.**