

## INTRODUCTION

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System Three® manufactures a marine primer and topcoat that offer increased environmental friendliness without sacrificing performance. Since these products thin and clean up with water, they are less hazardous and less costly to use than their solvent-containing counterparts. Because they are non-flammable, they can be used where flammable solvent-based paints cannot. Once cured, the combination is water and chemical-resistant while offering maximum protection from the sun and weather for topside watercraft applications.

### RECOMMENDED USES:

- Epoxy coated fiberglass
- Epoxy coated wood
- Polyester gelcoat
- Existing paint systems

## PRODUCT DESCRIPTIONS

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### PENNANT PRIMER

Pennant Primer is a waterborne, two-component epoxy-polyamide primer. It contains no harmful solvents and cleans up with water. It bonds tenaciously to most clean, sanded surfaces while providing a friendly surface for water and solvent-based topcoats.

For marine applications, the Pennant Primer can be applied above or below the waterline. Pennant Primer will also seal fairing or other filler work before top coating.

### PENNANT PRIMER CHARACTERISTICS:

VOLUME SOLIDS:	35%
WEIGHT SOLIDS:	53%
MIXED VISCOSITY:	75-80 KU
COLOR:	GRAY
VOC:	<200 G/L
MIX RATIO:	4:1 BY VOLUME
POT LIFE:	USE WITHIN 3 HOURS
INDUCTION:	LET MIXED PRIMER STAND 15 MINUTES BEFORE USE

APPLICATION CONDITIONS:	55°F (13°C) MINIMUM, 95°F (35°C) MAXIMUM
CLEAN UP:	WATER OR DENATURED ALCOHOL
DRY TO RECOAT:	SPRAY APPLICATION- 3-4 HOURS @ 70°F (21°C) ROLL AND TIP- 6-8 HOURS @ 70°F (21°C)
RECOAT TO PAINT:	24 HOURS @ 70°F (21°C)
COVERAGE RATE:	250-350 SQ. FT. PER GALLON
WET FILM THICKNESS PER COAT:	4.5-6.5 MILS
DRY FILM THICKNESS:	1.5-2.3 MILS
NUMBER OF COATS	2-3

## PENNANT TOPSIDE PAINT

Pennant Topside Paint is a two-part, waterborne polyurethane designed for marine topside applications. Pennant Topside Paint contains state-of-the-art UV absorbers to slow the effects of the sun's damaging rays. It has outstanding exterior durability for the most demanding environments. Pennant Topside Paint offers exceptional scratch and mar resistance for marine topside applications.

Pennant Topside Paint consists of a can of paint and a bottle of crosslinking material.

### PENNANT TOPSIDE PAINT CHARACTERISTICS:

VOLUME SOLIDS:	32-35%
WEIGHT SOLIDS:	32-36%
MIXED VISCOSITY:	75-80 KU
VOC:	<220 G/L
MIX RATIO:	2 OZ. CROSSLINKER PER GALLON OF PAINT
POT LIFE:	USE WITHIN 24 HOURS
APPLICATION CONDITIONS:	55°F (13°C) MINIMUM, 85°F (29°C) MAXIMUM
CLEAN UP:	WATER
DRY TO RECOAT:	SPRAY APPLICATION- 2 HOURS @ 70°F (21°C) ROLL AND TIP- 4-6 HOURS @ 70°F (21°C)
COVERAGE RATE:	400-500 SQ. FT. PER GALLON
WET FILM THICKNESS PER COAT:	3-4 MILS
DRY FILM THICKNESS:	1-1.3 MILS
RECOAT WITHOUT SANDING:	24
NUMBER OF COATS	3 OR MORE

# SUBSTRATE REQUIREMENTS

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## EPOXY COATED FIBERGLASS

For best results, use System Three non-blushing SilverTip or Clear Coat epoxy. Some epoxy resin systems can leave an amine blush on the surface. Amine blush can interfere with the adhesion of the Pennant Primer and Topside Paint.

1. If you are using SilverTip or Clear Coat Epoxy for the fiberglass layup, skip to step number 3.
2. Remove surface blush by using a Scotch-Brite pad with detergent and warm water. Then flush the surface with fresh water.
3. Sand the epoxy surface with 150-grit paper, making sure to completely degloss the surface.
4. After sanding, vacuum or blow off the surface with clean, dry shop air to remove sanding dust.
5. Wipe the surface with denatured alcohol and clean rags in preparation for Pennant Primer.
6. Proceed to *Means of Applying Pennant Primer and Paint* for details specific to your application process.

## EPOXY COATED WOOD

Marine topside exterior wood components need to be epoxy sealed before applying Pennant Primer and Topside Paint. The wood surface must be clean and dry (verify with a moisture meter that levels do not exceed 12%). Additionally, the substrate must be structurally sound with minimal deflection. For best results, use System Three non-blushing SilverTip or Clear Coat epoxy. Some epoxy resin systems can leave an amine blush on the surface. Amine blush can interfere with the adhesion of the Pennant Primer and Topside Paint.

1. Sand the bare wood using 80-100 grit sandpaper. Make sure that all edges and corners are rounded over. Sharp edges promote poor epoxy coverage, which can lead to a premature failure of the coating system.
2. After sanding, vacuum or blow off the surface with clean, dry shop air to remove sanding dust.
3. Fill surface imperfections with SilverTip QuikFair. Sand repair areas until smooth using 100-120 grit paper.
4. Repeat step 2.
5. Apply a thin seal coat of epoxy with a 1/8" nap foam roller. Ensure that all surfaces are coated with epoxy, paying particular attention to the end grain.
6. Apply 2-3 additional heavier coats of epoxy. Recoating without sanding can be done within 72 hours of the last coat. If sanding is necessary, use 150-grit sandpaper.
7. Allow the epoxy to cure sufficiently, usually 48 hours at 70°F, before sanding in preparation for Pennant Primer.
8. If you used an epoxy that blushes, make sure to remove the surface blush before applying Pennant Primer. Use a Scotch-Brite pad with detergent and warm water. Then flush the surface with fresh water.
9. Sand the epoxy with 150-grit sandpaper.
10. Wipe the surface with denatured alcohol and clean rags in preparation for Pennant Primer.
11. Proceed to *Means of Applying Pennant Primer and Paint* for details specific to your application process

## POLYESTER GELCOAT

Polyester gelcoats often have mold release agents as well as wax contamination on the surface. Pennant Primer can be successfully applied over polyester gelcoats provided the surface is free from contaminants and well sanded.

1. The surface should be cleaned thoroughly using a Scotch-Brite pad with detergent and warm water.
2. Follow with a wax stripper. Flush the surface with plenty of fresh water.
3. Once the surface is clean and dry, thoroughly sand the gelcoat using 80-100 grit sandpaper.
4. Fill any surface crazing or other surface imperfections with SilverTip QuikFair. Sand the repaired areas until smooth with 100-120 grit paper.
5. After sanding, vacuum or blow off the surface with clean, dry shop air to remove sanding dust.
6. Wipe the surface with denatured alcohol and clean rags in preparation for Pennant Primer.
7. See below *Means of Applying Pennant Primer and Paint* for details specific to your application process.

## EXISTING PAINT

Pennant Primer and Paint can be applied over most existing paint surfaces, provided that they are sound and free from wax and other contaminants. Before committing to a complete paint resurfacing, pretesting is recommended to ensure adequate adhesion is present with the existing paint and the Pennant Primer.

1. If the existing paint has been waxed, first clean the surface. Scrub the paint with a Scotch-Brite pad in conjunction with detergent and warm water. Rinse the surface with plenty of fresh water.
2. Follow with a wax stripper. Flush the surface with fresh water.
3. If necessary, fill surface imperfections with SilverTip QuikFair. Sand repair areas until smooth with 100-120 grit paper.
4. Sand the existing painted surface with 150-grit sandpaper. Make sure to completely degloss the paint.
5. After sanding, vacuum or blow off the surface with clean, dry shop air to remove sanding dust.
6. Wipe down the paint with denatured alcohol and clean rags in preparation for Pennant Primer.
7. Proceed to *Means of Applying Pennant Primer and Paint* for details specific to your application process.

## MEANS OF APPLYING PENNANT PRIMER AND PAINT:

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Pennant Primer and Topside Paint can be applied by the roll and tip method or spray application.

### The Roll and Tip Method:

**Application Conditions:** When applying Pennant Primer and Topside Paint with a roller and brush, be mindful of the ambient temperature and humidity conditions. Extreme environmental conditions can negatively affect how the paint flows out once applied. Best results are achieved in the average temperature and humidity range of (70-80°F and 50-80% relative humidity)

It's advisable to work in an environment where the surface is protected from the sun and the wind. Surfaces exposed to heat from the sun and the wind will set up too quickly, resulting in poor flow out.

### Pennant Primer

**Mixing:** Stir Part B thoroughly to remix any settled material. Mix 4 parts Hardener Part B with 1 part Resin Part A by volume and stir thoroughly for 2 minutes. Allow the material 15 minutes to induct before use. Mix only enough material which can be used within 3 hours @ 70°F. Higher temperatures will reduce the pot life, while cooler temperatures will increase the pot life.

**Application:** For best results, apply 2-3 coats of Pennant Primer to the substrate. Use a 3/16" -1/4" foam roller made for waterborne paints and a high-quality synthetic bristle brush.

Apply the primer liberally at 4.5-6.5 wet mils using a foam roller. Follow by lightly dragging the synthetic brush over the surface to remove bubbles. At 70°F (21°C), the primer can be recoated in 6-8 hours without sanding. Best results are achieved by recoating without sanding in between coats. This allows for maximum film build of the primer and reduced labor time. If the primer requires sanding or has cured more than 72 hours, sand with 220-320 grit paper. The Pennant Primer is sandable in 12-14 hours at 70°F (21°C). Keep in mind that cooler temperatures will increase the time to recoat, while warmer temperatures will reduce the time to recoat.

Pennant Primer does not require sanding for adhesion of the Pennant Topside Paint. If you choose to sand the primer to even out the surface, use 220-320 grit sandpaper.

**Note:**

- Wet mil thickness gauges are readily available from your local paint store.

**Cleanup:** Clean the application equipment with warm, soapy water. Brushes may be further cleaned with denatured alcohol.

## **Pennant Topside Paint**

**Note:**

- If using a primer other than Pennant Primer, pretesting is recommended to ensure good adhesion is present.
- Pennant Primer does not require sanding for adhesion of the Pennant Topside Paint.
- The crosslinker will remain active in the Pennant Paint for 24 hours. Discard any unused paint after 24 hours.

**Mixing** Gently stir Pennant Topside Paint thoroughly to remix any settled material. While stirring, slowly add the crosslinker at 2 oz. per gallon of paint. Mix thoroughly to homogenize the paint and crosslinker.

**Application:** For best results, apply 3 coats of Pennant Topside Paint. Use a 1/8"–3/16" foam roller made for waterborne paints and a high-quality synthetic tipping brush. For an improved working time, reduce the paint with water to 5–10% by volume.

Apply the paint at 3-4 wet mils per coat with a foam roller. Follow by lightly dragging a quality synthetic bristle brush over the paint to remove bubbles and even out the surface. Avoid overworking the paint, as this can result in lap marks. Larger areas may require additional helpers to maintain the paint's wet edge.

Let the first coat of paint dry 4-6 hours before recoating. The Pennant Topside Paint does not require sanding within 24 hours of application. If the paint has cured beyond 24 hours, sand with 220-320 grit paper. Remove the sanding dust by flushing the surface with plenty of fresh water. Dry with a lint-free towel. Apply additional coats of Pennant Topside Paint in the same manner.

**Note:**

- Colors such as red, yellow, and orange are more difficult to achieve opacity and may require additional coats.

**Cleanup:** Clean the application equipment with warm, soapy water. Brushes may be further cleaned with denatured alcohol.

## **Conventional Pressure Pot:**

Before spraying Pennant Primer and Paint, make sure that the fluid lines are clean. Purge the lines with denatured alcohol and follow with fresh water.

**Application Conditions:** When spraying applying Pennant Primer and Topside Paint, be mindful of the ambient temperature and humidity conditions. Extreme environmental conditions can negatively affect how the paint flows

out once applied. Best results are achieved in the average temperature and humidity range of (70-80°F and 50-80% relative humidity).

It's advisable to work in an environment where the surface is protected from the sun and the wind. Surfaces exposed to heat from the sun and the wind will set up too quickly, resulting in poor flow out.

## **Pennant Primer**

**Mixing:** Stir Part B thoroughly to remix any settled material. Mix 4 parts Hardener Part B with 1 part Resin Part A by volume and stir thoroughly for 2 minutes. Allow the material 15 minutes to induct before use. Mix only enough material which can be used within 3 hours @ 70°F. Higher temperatures will reduce the pot life, while cooler temperatures will increase the pot life.

**Application:** For best results, apply 2-3 coats of Pennant Primer to the substrate.

### **Pressure Pot Settings:**

- Pot Pressure: 10-15 psi
- Atomization Pressure: 25-30 psi
- Tip: 1.4–1.8 mm tip
- Reduction: As needed, up to 15% (water or denatured alcohol)

Spray an even coat of the Pennant Primer at 4.5-6.5 wet mils. At 70°F (21°C) the primer can be recoated without sanding in 3-4 hours. Best results are achieved by recoating without sanding in between coats. This allows for maximum film build of the primer and reduced labor time. If the Pennant Primer has cured more than 72 hours, it should be sanded with 220-320 grit paper before applying more primer.

Pennant Primer does not require sanding for adhesion of the Pennant Topside Paint. If you choose to sand the primer to even out the surface, use 220-320 grit sandpaper.

### **Note:**

- Wet mil thickness gauges are readily available from your local paint store.

**Cleanup:** Clean spray equipment with fresh water. Denatured alcohol can be used to further clean the spray equipment.

## **Pennant Topside Paint**

### **Note:**

- If using a primer other than Pennant Primer, pretesting is recommended to make certain good adhesion is present.
- The crosslinker will remain active in the Pennant Paint for 24 hours. Discard any unused paint after 24 hours.

**Mixing:** Gently stir Pennant Topside Paint thoroughly to remix any settled material. While stirring, slowly add the crosslinker at 2 oz. per gallon of paint. Mix thoroughly to homogenize the paint and crosslinker.

**Application:** For best results, apply 3 coats of Pennant Topside Paint.

### **Pressure Pot Settings:**

- Pot pressure: 10-15 psi
- Atomization pressure: 30-50 psi
- Tip size: 1.0-1.2 mm
- Reduction: As needed, up to 25% with water

When spraying, the first coat should be applied ultra-thin, avoiding dry spray. This coat should look patchy over the substrate. After a minimum of 1 hour, spray an even coat at 3-4 mils. Wait a minimum of 2 hours before applying the next coat. Further coats can be applied in 2hour increments.

No sanding is required within 24 hours of application. After 24 hours, sand with 220-320 grit paper. Remove sanding dust by flushing the surface with plenty of fresh water. Dry with a lint-free towel. Apply additional coats in the same manner.

**Note:**

- Colors such as red, yellow, and orange are more difficult to achieve opacity and may require additional coats.

**Cleanup:** Clean spray equipment with fresh water. Denatured alcohol can be used to further clean the spray equipment.

## **Airless Spray:**

Before spraying Pennant Primer and Paint, make sure that the fluid lines are clean. Purge the lines with denatured alcohol and follow with fresh water

**Application Conditions:** When spray applying Pennant Primer and Topside Paint, be mindful of the ambient temperature and humidity conditions. Extreme environmental conditions can negatively affect how the paint flows out once applied. Best results are achieved in the average temperature and humidity range of (70-80°F and 50-80% relative humidity)

It's advisable to work in an environment where the surface is protected from the sun and the wind. Surfaces exposed to heat from the sun and the wind will set up too quickly, resulting in poor flow out.

## **Pennant Primer**

**Mixing:** Stir Part B thoroughly to remix any settled material. Mix 4 parts Hardener Part B with 1 part Resin Part A by volume and stir thoroughly for 2 minutes. Allow the material 15 minutes to induct before use. Mix only enough material which can be used within 3 hours @ 70°F. Higher temperatures will reduce the pot life, while cooler temperatures will increase the pot life.

**Application:** For best results, apply 2-3 coats of Pennant Primer to the substrate.

### **Airless Sprayer Settings:**

- Pressure: 2700-3000 PSI
- Hose: .25" ID
- Tip: Fine-Finish .013"-.015"
- Reduction: As needed, up to 10% (Denatured alcohol or water)

Hold the gun 12" from the surface and move quickly. Spray an even coat of the Pennant Primer at 4.5-6.5 wet mils. At 70°F (21°C) the primer can be recoated without sanding in 3-4 hours. After 72 hours, the Pennant Primer must be sanded, use 220-320 grit paper. Keep in mind that cooler temperatures will increase the time to recoat, while warmer temperatures will reduce the time to recoat. Best results are achieved by recoating without sanding in between coats. This allows for maximum film build of the primer and reduced labor time.

Pennant Primer does not require sanding for adhesion of the Pennant Topside Paint. If you choose to sand the primer to even out the surface, use 220-320 grit sandpaper.

**Note:**

- Wet mil thickness gauges are readily available from your local paint store.

**Cleanup:** Clean spray equipment with fresh water. The spray equipment may be further cleaned with denatured alcohol.

## **Pennant Topside Paint**

### **Note:**

- If using a primer other than Pennant Primer, pretesting is recommended to make certain good adhesion is present.
- The crosslinker will remain active in the Pennant Paint for 24 hours. Discard any unused paint after 24 hours.

**Mixing:** Gently stir Pennant Topside Paint thoroughly to remix any settled material. While stirring, slowly add the crosslinker at 2 oz. per gallon of paint. Mix thoroughly to homogenize the paint and crosslinker.

**Application:** For best results, apply 3 coats of Pennant Topside Paint.

### **Airless Sprayer Settings:**

- Pressure: 2700-3000 psi
- Hose: .25" ID
- Tip size: .007-.011
- Reduction: As needed, up to 5% with water

Hold the gun 12" from the surface and move quickly, applying an ultra-thin first coat. The surface should be patchy over the substrate. After 1 hour, apply an even coat at 3-4 mils. Wait a minimum of 2 hours before applying the next coat. Further coats can be applied in 2 hour increments.

No sanding is required within 24 hours of application. After 24 hours, sand with 220-320 grit paper. Remove sanding dust by flushing the surface with plenty of fresh water. Dry with a lint-free towel. Apply additional coats in the same manner.

### **Note:**

- Color such as red, yellow, and orange are more difficult to achieve opacity and may require additional coats.

**Cleanup:** Clean spray equipment with fresh water. Denatured alcohol can be used to further clean the spray equipment.