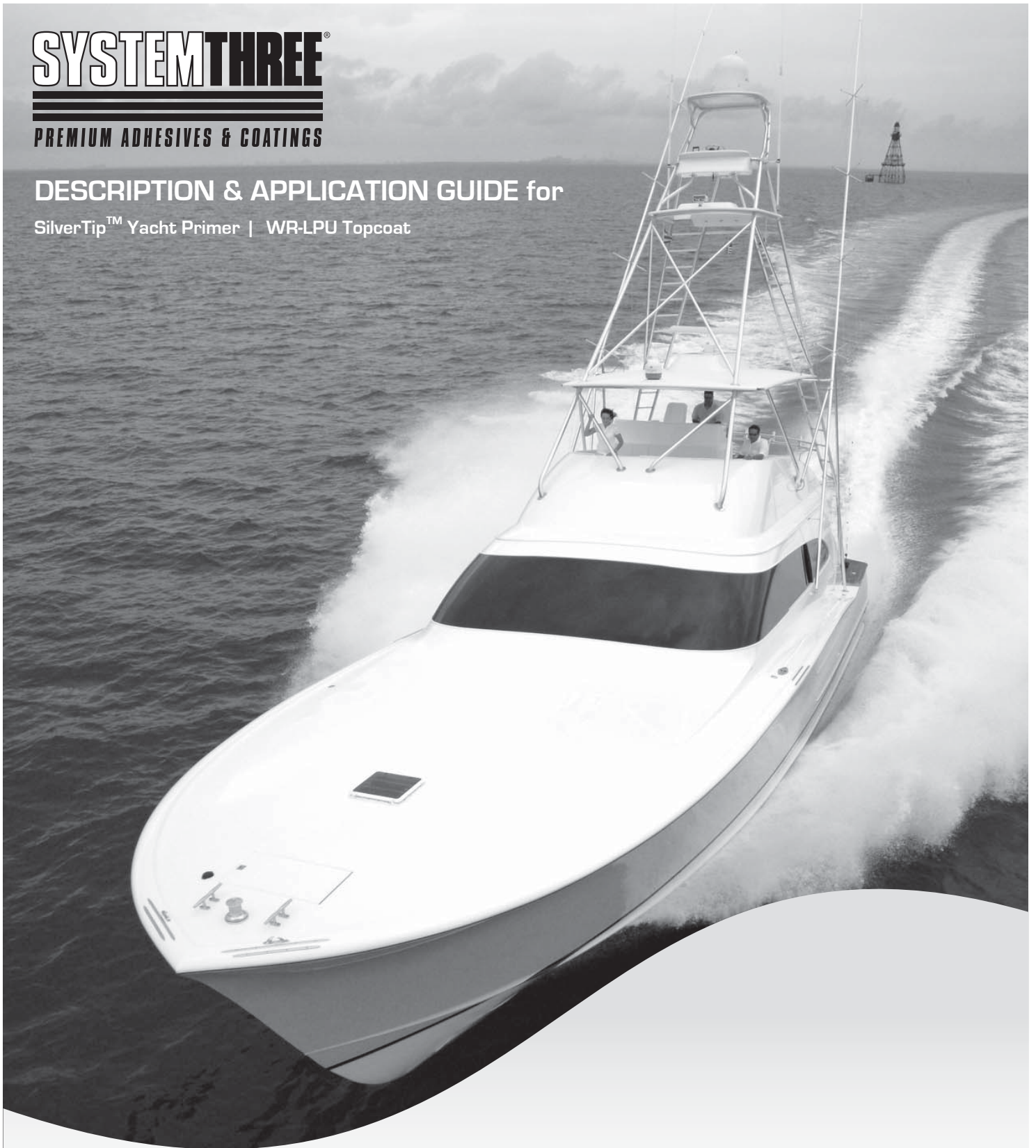


# SYSTEMTHREE®

PREMIUM ADHESIVES & COATINGS

## DESCRIPTION & APPLICATION GUIDE for

SilverTip™ Yacht Primer | WR-LPU Topcoat



## INTRODUCTION

System Three manufactures a marine topcoat and primer 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 and offers maximum protection from sun and weather, for watercraft and many other projects. The primer has corrosion-resistance and easy-sanding properties, while the topcoats contain ultra-violet light absorbers, to give them extended durability.

Although the System Three paint products thin with water, they apply much differently from architectural latex paints. With a little practice however, professional-looking results can be achieved by the non-professional applicator. This brochure will introduce new users to what they can expect from the products.

## PRODUCT DESCRIPTIONS

### Silvertip™ Yacht Primer

Silvertip™ Yacht Primer is a waterborne, two-part marine epoxy primer specifically formulated as a sandable base for System Three® WR-LPU and SilverTip Yacht Enamel. Yacht Primer can be applied over polyester surfaces, and properly prepared wood, metal, and cementitious surfaces. Use Yacht Primer as a base coat for anti-fouling paints, or over epoxy or vinyl ester barrier coats before topcoating. It will provide performance equal to its solvent-borne counterparts, in corrosion protection, film-build, and sandability. In addition, it is non-flammable and contains no highly-hazardous (HAPS) solvents or heavy metals.

Yacht Primer consists of a epoxy resin-based PART A and a unique polyamide hardener PART B. It is measured at a 1:4 ratio, and will form an oil-in-water emulsion, when thoroughly mixed. When cured, it will present a uniform; easy-sanding surface which will make the topcoat enamel looks its best.

Yacht Primer will fill only very small surface imperfections, and will not substitute for a fairing putty or a layer of epoxy coating or laminating resin. A minimum of two coats of primer is recommended, three if significant sanding is planned. This should allow for some to be removed by sanding, while leaving enough film thickness for opacity and topcoat adhesion.

Although Yacht Primer was formulated to provide a smooth, uniform surface for the System Three topcoats, it is compatible with most other marine coatings which are normally applied over a two-part epoxy primer. A secondary function of the primer is to help poor-hiding topcoat colors look uniform and opaque. Lead-free red, orange and yellow topcoats do not hide well and the color can appear mottled if the substrate is not uniform. Using the yacht primer with these can provide a more uniform, less mottled surface appearance.



Yacht Primer dries by evaporation and then cures in a temperature-dependent resin/hardener curing reaction. It may be recoated with additional primer after it is dry to the touch but it should not be topcoated until after it cures. Curing takes about a day in warm temperatures and longer in cool weather. Test for cure by wetting a finger and rubbing it on the primer. If your fingertip picks up some primer then it is not cured. The film will not be water-resistant until it is cured. Rain or moisture from dew or condensation can damage the film. The primer cures as a relatively rigid film, so is not recommended for use on flexible substrates like fabric or thermoplastics.

### WR LPU Polyurethane Topcoat

System Three® WR-LPU™ is a two-part, water-borne linear polyurethane enamel. It will provide appearance and performance equal to its solvent-borne counterparts. WR-LPU topcoat comes in clear gloss, clear satin, and 12 popular colors.

The WR-LPU product consists of a can of paint and a bottle of crosslinking material. The paint by itself cures to a very high-quality coating, without the crosslinker. However, the addition of the crosslinking material produces a tougher and more durable film. It will be more chemical and fuel resistant, have better gloss retention, and generally last longer than a film cured without the crosslinker.

Paint cured without crosslinker may be recoated up to two weeks without sanding. However, a crosslinked film, because it is much tougher, must be sanded if recoating takes place more than one day after the previous coat was applied. Some sanding can be avoided, at the sacrifice of some durability, by mixing crosslinker into only the last coat. The crosslinker reacts with the polyurethane resin in the paint, but also reacts slowly with water. Crosslinked paint not used within 20-24 hours will lose the added durability. A readdition of crosslinker can be done, however, without any loss of properties.



Pigmented (colored) WR-LPU is available in a semi-gloss finish. Clear WR-LPU is available in satin or high gloss. For a high-gloss colored finish, use 1-2 coats of color, followed by 1-2 coats of high gloss Clear WR-LPU.

When enough water evaporates a film begins to form and the paint is “set-to-touch.” This can happen in hot weather before the paint does not have adequate time to flow out. Further thinning to solve this may result in runs and the only solution will be to wait until the temperature drops or raise the humidity in a closed room by spraying a quart of water into the air or wetting the floor.

### Notes:

We factory-tint all our colors, using special pigment dispersions that these materials require. Custom-matched colors are available, in gallons only, for an up charge. System Three requires a sample of the color to be matched. Plan on a minimum of three applications when using our topcoat. While you may have sufficient “hide” with only one or two coats you will not have sufficient dry film thickness to provide maximum protection. Premature weathering of the paint film may occur under these circumstances.

Polyurethane paints, while giving excellent water resistance, are to be used above the waterline only. Constant immersion for months can cause blistering of the paint film.

Bare, or System Three epoxy-coated wood can be coated directly with WR-LPU clear or colors, without primer.

## SURFACE PREPARATION

Use System Three Quikfair to fair or level out flaws and imperfections in the surface to be painted. Seal sanded putty with a thin coat of Clear Coat, or similar epoxy sealer, to eliminate surface porosity and roughness. Surfaces to be painted must be free of dust, grease or oil. Do not use a tack rag to remove dust. They can contain wax or other materials that can leave a residue on the surface that is incompatible with water. Waterborne paints have a difficult time wetting contaminated surfaces.

**Aluminum:** Apply a wash, or etching primer according to manufacturer's instructions. Allow to cure and then apply SilverTip Yacht Primer.

Composite surfaces such as wood/epoxy or polyester resin should be cleaned of dirt, oil, & other contaminants then sanded with up to 150-grit sandpaper. Remove all sanding dust with a damp or alcohol-wetted rag prior to primer application.

Mild Steel should be cleaned of rust, oil, & dirt, then chemically etched or sandblasted.

Wood should be cleaned of dirt, oil, & other contaminants then sanded with up to 150-grit sandpaper. Remove all sanding dust with a damp or alcohol-wetted rag prior to primer application.

### APPLICATION

**Temperature:** Use SilverTip Yacht Primer or WR-LPU when the ambient temperature is between 55-85°F.

**Humidity:** Higher humidity will allow the paint to stay wet longer. This will allow easier maintenance of a wet edge, and better paint flow-out before drying.

**Coverage:** The following will serve as a guide for ordering the correct amount of paint for your project:

SilverTip Yacht Primer: 200-250 ft<sup>2</sup>/gallon

WR LPU Urethane topcoat: 350-400 ft<sup>2</sup>/gallon

**Film Thickness:** The following yields are our recommended based on the coverage rates shown below:

PRODUCT	Wet Film Thickness	Dry Film Thickness
Yacht Primer	6 - 8 mils	3 - 4 mils*
WR LPU Topcoat	6 - 7 mils	2½ - 3 mils

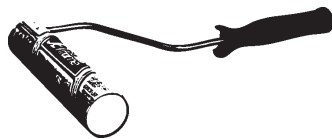
\*Some primer film is expected to be removed on sanding.

To measure wet-film thickness, use a film-thickness or "notch" gauge. They are available at most paint stores.

**Equipment:** Both products can be applied by brush, roller, or spray. The best results are obtained by using spray equipment. HVLP

sprayers, intended for use with waterborne enamels, will give the least amount of dry and overspray, with maximum air and material flow control. Both the turbine type and air-assisted airless are used successfully. With some practice at lowering air pressure and increasing material flow, a conventional pressure sprayer will give acceptable results too.

The amount of thinning is not only a function of the equipment but it also depends upon ambient temperature and humidity. The lower the



temperature and the higher the humidity, the more open time the LPU will have. Thin the material just enough to get rid of "orange peel" in the dry film and no more. For initial trials, do not thin the primer. Start with 20-25% for the LPU. Needle and tip selection vary depending on the equipment. Get the manufacturer's or dealer's recommendation for spraying waterborne enamels. The nomenclature can be confusing. With solvent-based, or conventional topcoats, there is a distinction between the kind of needles and tips used for enamels and polyurethanes. With waterborne products, there is no such distinction. A general recommendation for tip size is 1.0 millimeter.

Turbine air is quite warm and dry and can dry the WR LPU too much in the fan. When using a turbine type HVLP, an extra hose section can help. The extra hose section allows the air to cool. On warm dry days the extra section can be coiled in a five-gallon bucket of ice water.

Acceptable results can be obtained by brush or roller application. For brushing, use a high-quality synthetic bristle brush. For rolling, use a 1/8 or 1/4 inch nap roller.

**SilverTip Yacht Primer:** If thinning is necessary, use clean water. Clean brushes and equipment with soap and water.

Once cured the primer will sand easily. Start with 100-120 grit or and progress through 220-320 grit in preparation for topcoat application. Type of sander will govern the grit of sandpaper. Use the next finer grit to remove the sanding scratches from the previous coarser grit. Sanding grooves will show through into the finished topcoat. Cured WR-155 may be wet or dry-sanded. Remove all dust from your work and shop, make sure the sanded surface is free of grease and oils, and you are ready for applying the topcoat.

**WR-LPU Topcoat:** Add crosslinker at the ratio of 2 fluid ounces per gallon of paint base, or 8 drops of crosslinker per ounce of paint. The topcoat may be thinned using clean water. The amount of thinning will depend upon the environmental conditions and method of application. The recommended range is up to about 30%. The optimum amount of thinning will depend on the temperature and humidity.

Conditions are more critical when applying WR LPU as compared to the primer. It is more difficult to get good results in hot dry weather as the paint can dry in the air before contacting the surface when spraying, or before leveling out when brushing or rolling. Never paint a surface that has been in direct sunlight for hours. It can be hot enough to dry the paint before it can level out.

When spraying, make multiple light passes with the gun to the point where the droplets almost flow together. This will give the best results. As the droplets begin to level they will coalesce and flow into a film.

When brushing, first spread the material out, then work back into the wet material with long, slow strokes. When rolling, use the short-nap roller mentioned earlier, and then go back over the wet coat lightly, with a dry brush, foam or bristle, to pop any bubbles. This is called "rolling and tipping."

Subsequent coats may be applied as soon as the previous film has set and is not marred by a light touch. This is about 30 minutes at 80°F and 50 percent relative humidity. The previous coat may be masked in about an hour. Recoating of crosslinked coats should take place within eight hours of the subsequent coat while non-crosslinked coats have a non-sand recoat time of about two weeks. If more time than this elapses you should sand the previous coat to remove the gloss. Apply a minimum of three coats of WR LPU, four if sanding and buffing.



For maximum durability, the final coat(s) of WRLPU should be crosslinked. This will improve resistance to solvents and other chemicals, as well as improving abrasion and scratch resistance. A crosslinked coat will be 90% cured in about four to seven days. However, polyurethanes do not develop 100% of their properties for two weeks. When painting a boat hull, for instance, do not put the boat in the water until then.

Used as a clear finish over ClearCoat™ epoxy, WR-LPU can beautify and protect wood from discoloration and degradation.

**Buffing and polishing:** If a higher level of gloss is desired the cured coat may be sanded and buffed. Wet sand with 600 grit sandpaper proceeding in stages through 1500 grit. Buff with a compound equivalent to 2500 grit and finish with a product similar to 3M's Finesse-It.

**Cleanup:** Both the primer and topcoat should be cleaned up with water immediately after use. Remove dried WR-LPU from brushes or equipment by soaking in rubbing alcohol overnight, then rinse again thoroughly with water prior to re-use.

#### APPLICATION HINTS:

Practice applying paint on pieces of scrap beforehand. Mask parts or panels before mixing the paint. Use a high-quality masking tape intended specifically for low-viscosity paints. Press the edge of the tape with a thumbnail or the back of a spoon after applying to seal the edge. Masking tape should be removed as soon after applying the final coat as the paint won't run, but before the paint has dried. Cover any adjacent areas to protect from overspray.

If a slip-resistant deck or floor surface is desired use System Three Non-Skid Additive when painting. Paint the non-skid area and while still wet, broadcast the aggregate onto the wet paint and allow it to dry. Apply at least one "anchor" coat over the top of the aggregate. System Three Non-Skid Additive is a clear polycarbonate plastic, which is lightweight and will hold up well.

#### SAFETY AND HANDLING:

While these products present no serious safety hazards, some precautions should be observed during use. Try to keep the material off your skin. Cured WR-LPU is difficult to remove without strong chemicals. The WR-LPU crosslinker and SilverTip Yacht Primer Activator resin are skin sensitizers. They can cause a severe allergic reaction from prolonged and repeated contact. Except for the Activator all the products mix with water so you should immediately wash them off if skin contact occurs. Remove any Activator by washing in soap and warm water. In case of eye contact with any of these products flush with plenty of water and seek immediate medical attention. Don't take them internally and keep them away from children.

It is not necessary to wear a respirator when applying these products by roller or brush. When spraying, wear a NIOSH-approved respirator for organic vapors.

#### QUESTIONS AND COMMENTS:

We're here Monday through Friday, 7:30am to 4:00pm Pacific Time to help you with your painting questions and problems. Please e-mail us via our website at [www.systemthree.com](http://www.systemthree.com), FAX us at 253.333.8866, or call us at 253.333.8118. To find a dealer near you look at the Retail Dealer Locator at the top of the systemthree.com homepage, or you can call our toll-free line at 800.333.5514. If there is no dealer convenient to you, we are happy to ship paint directly from the factory.



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