Sea Hawk
PREMIUM YACHT FINISHES

Large Aluminum Yacht
Surface Preparations & Procedures

Learn About:
- Proper Aluminum Preparation
- Equipment Needed
- Application of Bottom Paint and Primers
- Correct Sea Hawk Products to Use

TECHNICAL BULLETIN AL1284

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General

Aluminum is an excellent material for the construction of large yachts and used by many superyacht builders worldwide. Preparing the surface prior to painting, however, must be done following strict procedures to ensure paint system success. The following outlines the proper procedures to follow along with recommendations for specific equipment and the ideal antifouling paint products and primer systems sold by Sea Hawk Paints. It is equally important to recognize the value and need for strict adherence to paint product and systems applications.

Surface Preparation

The first step in any metal preparation is the initial cleaning and in this case, that requires the removal of all oils, grease, processing fluid residue or other water soluble contaminants. Use Sea Hawk Cleaner S80 or S90 to remove those surface contaminants in accordance with SSPC Solvent Cleaning procedure SSPC-SP-1. Once cleaned and dry, the next step is the preparation of the surface by abrasion with one of the following methods.

The most common procedure is by sand blasting the entire area using a non-metallic abrasive like silica sand or similar blast media. The silica sand most generally used is a clean, white silica sand with a mesh size of 200-250. This should produce a blast profile of 1.0-1.5 mil. If the use of silica sand is prohibited there are numerous other blast media to consider. These include materials such as garnet, silicon carbide, DuPont Starblast, or possibly aluminum oxide. The alternative blast medias are generally more expensive than silica sand and under certain conditions may be safer to handle or may allow for more expediency in the blasting time. For more specific information, please contact your local Sea Hawk representative. Recognize that the use of other blast media like steel grit or copper slag are not recommended as these are dissimilar metals to aluminum and if embedded in the aluminum surface may cause galvanic corrosion at some later date.

The technical service people on the job site, must check the blast profile to ensure the profile (the depth of the impact on the surface due to the blast media used). The blast profile is a critical component in the success of the adhesion of the paints to be applied. In addition, the technical service representative must inspect the cleanliness of the blast cleaning. Although the SSPC standards for surface cleaning were designed for steel surfaces, the SSPC-SP-5 ('white' metal) or SSPC-SP-10 ('near white' metal) visual standards in SSPC-SP-Vis can be used for aluminum surfaces to determine if the degree of blasting and cleanliness is acceptable to start the painting process.

If blasting of the aluminum is not an acceptable surface preparation procedure, the alternative procedure is for power tool cleaning using a rotary disc sander with 24-36 grit wheels. This procedure is acceptable if necessary and will use the same coating system as would be recommended if the surface is sand blasted.

Follow the procedure SSPC-SP-3 for Power Tool Cleaning

The power tool cleaned surface must also be to bright metal void of any deep grooves that might exceed a depth of 5 mils. After blasting or grinding, it is important to remove all blasting or sanding dust by brush or broom or by vacuuming. Any residual dust can cause adhesion problems if not addressed. In addition, under no circumstances should a blasted or power tooled surface be cleaned with rags with or without solvent. Rags can leave fine hairs or fibers on the surface and can function like a 'wicking' agent which could wick water to the substrate causing future adhesion problems.

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Paint Application

Once the aluminum surface is properly prepared, the first paint in the total paint system must be applied as soon as possible. Aluminum metal can oxidize rapidly if not painted immediately with the first paint in the system. Sea Hawk recommends that the first coat be our Sea Hawk S76/S76C Strontium Chromate Epoxy Primer to a dry film thickness of 1.5-2.0 mils dry film thickness (DFT).

Once the first coat is cured to specification, (Min. 4 hours—Max. 8 hours @ 73°F) apply a second coat of Epoxy Primer S76/S76C and then continue with the balance of the priming system. The total dry film thickness of the system is dependent on which antifouling paint is to be used. If the antifouling paint to be used is based on cuprous oxide with or without a boosting biocide, we strongly recommend the total film thickness of the epoxy barrier coatings be 25.0 +/- 2.0 mils DFT. If the antifouling paint is copper free or based on cuprous thiocyanate, we recommend a total dry film thickness of the epoxy barrier system be 10.0-12.0 mils DFT.

Once the second coat of our S76/S76C Strontium Chromate Epoxy is properly cured and meets the S-76/S76C overcoating interval (Min. 4 hours—Max. 8 hours @ 73°F) apply sufficient layers of our Sea Hawk TUFF STUFF 1284/1285 High Build Epoxy to a dry film thickness of 6.0-7.0 mils per coat. Please refer to the TUFF STUFF 1284/1285 Technical Data sheet to meet proper overcoating intervals. (Max. 24 hours @73°F)

The antifouling paint can then be applied and we recommend at least two coats be applied to a total dry film thickness 5.0-6.0 mils. NOTE: If applying a copper-based bottom paint, total film thickness of the epoxy barrier coatings should be 25.0 +/- 2.0 mils DFT. The first coat of antifouling paint must be applied following the 'thumb print' method to determine if the epoxy primer is ready for over coating. Usually this is from 2-6 hours after application of the last coat of epoxy but is temperature dependent.

Note: 1.The first coat of our S76/S76C Strontium Chromate Epoxy must be applied by spray or brush for small areas. Roller pads have the potential to leave nap material on the surface similar to the potential problems of wiping down a blasted or power tool cleaned metal surface. After the initial application all subsequent applications can proceed using spray equipment or by solvent resistant rollers. Note, if rollers are used, additional coats will be required to achieve the specified dry film thickness of the various paint products.

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2. All products must be tested for wet film thickness during the application process with a wet film thickness gauge such as an Elcometer WFT Gauge. Use the information on the individual products' product data sheets for thickness requirements per coat.

3. Likewise, the dry film thickness must be tested for each application and as a total system. Remember, the dry film thickness recommendations above depend on which type antifouling paint is to be used. Therefore, the total dry film thickness of the entire epoxy barrier system must be tested BEFORE the application of the antifouling paints. There are electronic dry film thickness gauges available today for both ferrous and non-ferrous surfaces. Check with your Sea Hawk representative for more specifics.

4. SSPC stands for Steel Structures Painting Council, an industry organization that writes various specifications for surface cleanliness and paint specifications. SSPC provide both written and pictorial standards for the paint and coatings industry.

5. We strongly recommend the applicator read all available Sea Hawk literature on the paint products to be applied including the product data sheets and material safety data sheets before the application process begins. This will provide an understanding of any application limits and of any hazards related to the products application and handling.

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