Coval Molecular Coatings

5341 Old Redwood Hwy, Petaluma CA 94954

MARINE & HULL COAT

DATA SHEET

DESCRIPTION

Coval Marine & Hull Coat is a thin 2 part, clear, and extremely smooth pesticide and heavy metal-free coating of quartz that inhibits the growth of most marine grasses, barnacles, and mussels from metal ship and boat hulls to provide better fuel economy and reduced cleannings. Works on all ferrous metal hulls, and non-ferrous metal underwater running gear, such as propellers, rudders, shafts, struts and trim tabs. Coval Marine & Hull Coat is also a very effective coating for concrete ponds, pipes, and tanks to help prevent liquid seepage through the pores of the concrete. It can reduce the drag in moving liquids through pipe lines, thus reducing energy costs. It also inhibits the ability of most marine growth from attaching itself to the surfaces. (Not for use on wood hull boats).

SURFACE

All underwater non-ferrous metals, painted steel hulls, and concrete.

SOLUTION

Corrosion, marine growth, energy efficiency, and environmental damage.

CHARACTERISTICS

Color: Clear to slight amber to rose (depending on temp and humidity). Always dries clear.
Vehicle Type: Solvent Base
Flash Point: (C Penskey-Martens closed Cup) 25C/77F
VOC: less than 100 g/L
Weight per Gallon: 7.36 lb
Non-breathable

TESTING

ASTM D-1654-08 Excellerated Weathering Exposure, 10 out of 10
ASTM D-5894-10 Cyclic Salt Fog UV Exposure of Painted Metals, 10 out of 10
ASTM D-714-02 (09) Blistering of Paints. 10 out of 10
ASTM D-610-08 Rusting on Painted Steel Surfaces, 10 out of 10.
ASTM D-3363 Film Hardness Taper, 39.11 average
ASTM D-2803-03 Procedure B (ISO 4623) Corrosion and Filiform. No Filiform or Corrosion 1,000 hours.

SPREAD RATE

Recommended Spread Rate per coat:
Wet mils: 2.0-3.0
Dry mils: 1.2-1.8
Two coats required over hulls wet-on-tack application.

COVERAGE

Coverage: 500-800 sq.ft./gal (approximate)
Coverage will vary depending on the porosity and texture of the substrate and application.
Most applications require 2 coats, please read this data sheet carefully.

SURFACE PREPARATION

Steel Hulls

Sand blast using Commercial Blast Clean SSPC-SP-10 method or abrade off any existing ablative marine paints until you reach a solid base or bare steel.

Repaint the hull with a marine grade primer per the manufacturer's instructions. The Coval Marine & Hull Coat needs to be applied over the primer during the reapplication or re-coat time frame as recommended by the primer paint manufacture. If you do not apply the Coval Marine & Hull Coat during this time frame, you must then mechanically abrade the hull to minimum of 220 grit in order to achieve a good anchor to bond. This will prevent coating from delaminating. Then apply two coats of Coval Marine & Hull Coat directly to the surface, wet-on-tack. Second coat must be applied within 15 minutes while first coat is still tacky. If first coat dries, wait 24 hours and sand with a minimum of 220 grit sandpaper in order for second coat to bond. If you don't abrade, the second coat will peel off.

Non-Ferrous Metals

For stainless, brass, aluminum, or bronze surfaces, completely clean to bare metal. Then using Coval Step #1 Cleaner for unpainted surfaces, clean the entire surface to remove any contaminates. Rinse clean with fresh water and dry. Once dry, then apply two coats of Coval Marine & Hull Coat directly to the surface, wet-on-tack. Second coat must be applied within 10-15 minutes while first coat is still tacky. If first coat dries, wait 24 hours and sand with a minimum of 220 grit sandpaper in order for second coat to bond. If you don't abrade, the second coat will peel off.

Propellers

Clean completely by sand blasting, steam washing, or high-pressure washing to make certain surface is free of any barnacles or other marine growth. Inspect for any damage or fractures and make any necessary repairs. Then clean with Coval Step #1 Cleaner for Unpainted Surfaces. Rinse with fresh water and dry completely. Then apply two coats of Coval Marine & Hull Coat, wet-on-tack. Second coat must be applied within 10-15 minutes while first coat is still tacky. If first coat dries wait 24 hours and sand with a minimum of 220 grit sandpaper in order for second coat to bond. If you don't abrade, the second coat will peel off.

APPLICATION INSTRUCTION

Spray Application for Small to Mid-Size Boats.

Spraying is the preferred method of application. Mask off any adjacent surfaces to keep them free of drips or accidental coating. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, RH 90% or less and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again before it has dried.
Coval Marine & Hull Coat is a two component product consisting of 1:1 Coval Marine & Hull Coat and Coval Catalyst. Stir the container well, as there will be settlement of the nano particles in the bottom; typically ¼" will have settled. Stir the contents thoroughly for several minutes to re-suspend the nano particles

that have settled to the bottom. Make certain to re-stir at least every 10 to 15 minutes during the application process to ensure proper performance of the coating.
For small to mid-size boats, use a high volume low pressure sprayer (HVLP) with a 1.0-1.3 spray tip with air pressure set at 25 to 30 psi. On a piece of cardboard, first spray a test pattern. You are looking to adjust your spray gun for an 8-10 "elongated pattern approximately 1 1/2" wide in the middle. Fluid flow should cover but not puddle. You will be applying two thin coats, wet-on-tack, 2-3 WFT each. Spray the coating on in a cross pattern as you move down the vessel from top to bottom, then right to left, keeping a wet edge. You must apply the second coat within 10-15 minutes while the first coat is still tacky, if the vessel is too large for one person to complete the first coat and start the second coat while still tacky, then you will need additional applicators applying the second coat following the first coat applicator within 10-15 minutes behind, so as to coat the first coat while still tacky. Allow the Coval Marine & Hull Coat to cure for 48 hours prior to launch.

Spray Application on Large Yachts & Ships

Spraying is the preferred method of application. Coval Marine & Hull Coat is a 2 component product requiring PART #B CATALYST. Mask off any adjacent surfaces to keep them free of drips or accidental coating. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, RH 90% or less, and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again before it has dried.
On large projects, Coval Marine & Hull Coat will most likely be in 55 gallon drums or 275 gallon totes. You will need an empty container to hold equal parts of part A and B. You will need to insert a drum or tote agitator into the container to resuspend the nano particles that have settled to the bottom. Make certain there is no sediment in the bottom of the container or coating will not perform. Keep the agitator going the entire time you are spraying. You will most likely be applying with an air less spray system equipped with a manifold with several spray tips to cover very large areas at once. You will need to install spray tips or adjustable spray heads that can mist the coating on thin at a rate of 2-3 WFT. You will need a crew of enough applicators to keep a wet edge as you go around the ship. You will need a second crew of applicators to follow the first crew approximately 10-15 minutes behind to apply the second coat while the first coat is still tacky. DO NOT ALLOW THE FIRST COAT TO DRY FOR MORE THAN 15 MINUTES OR SECOND COAT WILL NOT ADHERE AND WILL PEEL OFF. AFTER COMPLETION OF COATING, DO NOT LAUNCH FOR A FULL 48 HOURS.

Roller Application for Hulls

Mask off those areas that you don't want the coating to contact, such as the boot strip. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, 90% or less RH and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again before it has dried.
Stir the container well, as there will be settlement of the nano particles in the bottom; typically ¼" will have settled. Stir the contents thoroughly for several minutes to re-suspend the nano particles that have settled to the bottom. Make certain to re-stir at least every 10 to 15 minutes after mixing part A and B during the application process to re-suspend the nano particles to ensure proper performance.

Using a high density ultra smooth foam roller or ¼" nap roller apply the coating in an up and down then left to right pattern to ensure complete coverage of the surface. Do not over work the coating to the surface. Just spread the coating thin and continue on. Make certain to apply coating thin at a rate of 2.0 to 3.0 wet film thicknesses (WFT). Within 10-15 minutes, a second coat needs to be rolled on while the first coat is still tacky, this is a wet on tack application. On larger vessels and boats, it is necessary to have enough applicators on hand to re-coat while the first coat is still tacky. If the first coat dries, the second coat will not bond and it will peel off. In the event the first coat dries too fast and the second coat does not get applied during the tacky period, wait 24 hours and abrade the first coat to a minimum of 220 grit in order that the second coat can achieve a mechanical bond to the first coat. Allow coating to cure 48 hours before launching.

CAUTION: If using spray application method in an enclosed space, make certain to tent off the area being sprayed with plastic tarps to avoid spray dust from traveling and contaminating other surfaces with overspray dust. Tented and enclosed areas should always be positively supplied with fresh air and have ventilated exhaust to outside using fans.
Never spray near any open source of ignition, such as pilot light flames, or anything that may spark, as this may cause ignition and explosion of the fumes and vapors.
When spraying outdoors, make certain there will be no rain for at least 5 hours after anticipated completion time. If there is high wind, this will affect the quality of the finish, as blowing wind can disrupt the spray pattern from the HVLP sprayer and can contribute to contamination of the finish. It may be necessary to erect a windscreen to protect the area prior to beginning the coating application. (In enclosed areas, make sure to have an observer watching the applicator for any signs of physical distress.)

Underwater Hardware

For bronze and stainless propellers, rudders, stabilizers, sea strainers, shafts, and struts do not need to be primed, follow surface preparation instructions for unpainted surfaces, then apply Coval Marine & Hull Coat directly to the surface, following the spray or roller application directions.

Concrete Surfaces:

For concrete ponds, tanks and aqueducts, make certain all oil, grease and dirt is removed using Coval Step #1 Cleaner for Unpainted Surfaces. Then rinse with fresh water and allow to dry. Before Coval Marine & Hull Coat can be applied, the concrete must be sealed to prevent the coating from absorbing into the surface, rendering it non-effective. Once the concrete surface is clean and dries (less than 13% moisture), apply Coval Quick Seal & Enhance to pre-seal the surface. Depending on the porosity and condition of the concrete, it may take several coats to seal the surface. (See Coval Quick Seal & Enhance application instructions).Coval Marine & Hull Coat is best applied by a pump sprayer. On concrete prepared with Coval Quick Seal & Enhance the use of PART #B CATALYST is optional. To apply by pump spraying, use a SP or similar acetone/alcohol proof sprayer equipped with a red fan tip on the wand handle.
Mask off any adjacent surfaces to keep them free of drips or accidental coating. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, 90% or less RH, and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again before it has dried.

Stir the container well, as there will be settlement of the nano particles in the bottom; typically ¼" will have settled. Stir contents thoroughly for several minutes to resuspend the nano particles that have settled to the bottom. Make certain to re-stir at least every 10 to 15 minutes after mixing part A and B during the application process to resuspend the nano particles to ensure proper performance.
Hold the tip of the wand approximately 8" to 10" from the surface and begin spraying in even back and forth, up and down pattern to cover the entire surface. Do not over apply too thick, you are looking for 2.0 to 3.0 wet film thickness (WFT) on a one coat application. Let coating dry and cure for 48 hours before emersion.

Rolling on Concrete Surfaces:

For rolling the surface of concrete ponds, tanks, and aqueducts, make certain all oil, grease, and dirt are removed from the pores and surface of the concrete by using Coval Step #1 Cleaner for Unpainted Surfaces. Then rinse with fresh water and allow to dry. Before Coval Marine & Hull Coat can be applied, the concrete must be sealed to prevent the coating from absorbing into the surface, rendering it non-effective. Once the concrete surface is clean and dry (less than 13% moisture), apply Coval Quick Seal & Enhance to pre-seal the surface. Depending on the porosity and condition of the concrete, it may take several coats to seal the surface. (See Coval Quick Seal & Enhance application instructions).
Mask off any adjacent surfaces to keep them free of drips or accidental coating. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, 90% or less RH and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again before it has dried.
Stir the container well, as there will be settlement of the nano particles in the bottom; typically ¼" will have settled. Stir the contents thoroughly for several minutes to resuspend the nano particles that have settled to the bottom. Make certain to re-stir at least every 10 to 15 minutes after mixing part A and B during the application process to resuspend the nano particles to ensure proper performance.
Using a high density ultra smooth foam roller or a ¼" nap roller, apply the coating in a back and forth, and up and down pattern, making sure to keep the roller wet with the coating. Do not apply too thick. You want a 2.0 to 3.0 wet film thickness (WFT) for best results. Apply only one coat. Allow to cure for 48 hours before emersion.

DRY TIME

Drying Time (@ 77 F, 50% RH):
Temperature and humidity dependent.
Touch: 2-3 hours
Through: 3-5 hours
Walk On: 8-12 hours
Full Cure: 7 Days

INTERRUPTION OF WORK

Upon drying, treated surfaces may appear similar to untreated surfaces. If work is interrupted, mark with tape or other marking device. You will need to abrade approximately 4 inches back over the coating to the edge with 220 grit sandpaper first, so the continuation of the coating does not peel. Apply over that 4" abraded area as a lab joint and continue the balance of the coating.

CLEAN UP

Clean tools and flush equipment immediately with acetone thoroughly before product dries. Once coating dries, it cannot be cleaned off with solvents.

CAUTION

Always wear OSHA approved 1910.134 and ANSI Z88 2 respiratory protection. Fresh air and exhaust should be provided in the work area. If inhaled, remove affected person to fresh air. Call physician immediately if physical difficulties occur. Wear butyl-rubber gloves and other skin protection to avoid contact. In the event of contact with skin, wash skin thoroughly with soap and water. Chemical safety goggles or splash shields are required. Do not wear contacts without eye protection. If you get coating in your eyes, rinse with fresh water for 15 minutes and seek immediate medical attention. If accidently swallowed, rinse mouth with fresh water for 15 minutes and seek immediate medical attention. (In enclosed areas, make sure to have an observer watching the applicator for any signs of physical distress.)

LIMITED 5 YEAR WARRANTY

Coval Molecular Coatings Inc. guarantees Coval Marine & Hull Coat to be defect free and any material that is proven to be defective will be replaced in a like quantity by the manufacturer within 5 years of date of purchase with proof of purchase receipt, and provided it has been applied according to the instructions on container and data sheet along with other related guidelines posted at covalmolecular.com. This warranty only extends to the owner of the vessel or property upon which the product is applied and is non-transferable. This warranty does not cover wear and tear only the product itself. Any warranty claim must be made in writing and sent to Seller with proof of purchase receipt, supporting materials and access to the vessel or property for inspection and testing as requested by Seller. Seller will thereafter provide 100% replacement product for product found to be defective for 2 years from date of purchase then prorated each of the remaining years until year 5. This warranty is given in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. The remedy stated herein is an exclusive remedy and Seller shall not be responsible for any other damages, including labor or any incidental, consequential, special or punitive damages, whether based on breach of express or implied warranty, negligence, strict liability or other legal theory.