



INSTRUCTIONS/USE

Description

NanoTech Marine Coating is a thin, clear, and extremely smooth, quartz coating that inhibits the attachment and growth of most marine grasses, barnacles, and mussels. It can be applied to metal ship and boat hulls to provide better fuel economy and reduced cleaning. NanoTech Marine Coating is free of pesticides and heavy metals. This coating works on all ferrous metal hulls, and non-ferrous metal underwater running gear such as propellers, rudders, shafts, struts and trim tabs. NanoTech Marine Coating is also a very effective coating for concrete ponds, pipes, and tanks to help prevent liquid from seeping through the surface pores. The NanoTech Marine Coating can also reduce the friction in pipelines, allowing liquids to flow easily, thus reducing energy costs. **(This product is NOT recommended for use on fiberglass or wood hull boats).**

Applications / Surfaces

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

- Eliminate Corrosion
- Water proofing
- Inhibit Marine Growth
- Improve Energy Efficiency
- Reduce Environmental Damage

Characteristics

Appearance:	Clear
Base Type:	Solvent based
Flash Point:	(C Penskey-Martens closed Cup) -9C/15F
VOC:	Less than 100 g/L
Weight per Gallon:	7.36 lb/gallon
Non-Breathable	

Testing

ASTM D-3359-09 Adhesion Standard test, 300 Hours 4B
 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.
 E96-10 Water Vapor Transmission, average WVT 0.3473 gr/ft2/hr, average perms 0.8376 gr/ft2/hr
 G155 Xenon Arc, wavelength 340nm irradiance 1.0 w/m2 500 hours, slight change
 ISO 4623 International Standard Corrosion, No Corrosion
 ISO 4628-10, International Standard, Degradation of Coating, No Degradation coated over primer.

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.

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Coverage

Coverage: 500-800 sq.ft./gal (approximate)
 Coverage will vary depending on the texture of the surface.

Surface Preparation

Steel Hulls

Sand blast Commercial Blast Clean SSPC-SP-10 method or abrade off any existing damaged or peeling 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 NanoTech Marine Coating needs to be applied over the primer during the re-application or re-coat time frame as recommended by the primer paint manufacturer. If you do not apply the NanoTech Marine Coating during this time frame you must then mechanically abrade the hull to minimum of 220 grit in order to achieve a good bond, (this will prevent coating from delaminating). Next, apply two coats of NanoTech Marine Coating directly to the surface. **The second coat MUST be applied within 15 minutes (while the 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 the surface is not abraded, the second coat will peel off.**

Non-Ferrous Metals

Surfaces such as stainless, brass, aluminum, or bronze need to be completely cleaned down to the bare metal in order to remove any contaminants - use NanoTech Surface Prep. The surface should then be rinsed with fresh water, dried, and wiped down with acetone. Then apply two coats of NanoTech Marine Coating directly to the surface. **The second coat MUST be applied within 15 minutes (while the 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 the surface is not abraded, 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. Clean and rinse with fresh water and allow for surface to dry completely. Apply two coats of NanoTech Marine Coating directly to the surface. **The second coat MUST be applied within 15 minutes (while the 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 the surface is not abraded, the second coat will peel off.**





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Application Instructions

Spray Method - Small to Mid Size Boats

Spraying Nanotech Coatings Marine Coating is the preferred method of application. Cover 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. Take necessary precautions against natural elements. Shake the container well as there will be settlement of the nanoparticles in the bottom (typically 1/4" will have settled). Shake the contents thoroughly for several minutes to re-suspend the nanoparticles that have settled to the bottom. Make certain to agitate contents 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 spray a test pattern. You are looking to adjust your spray gun for an 8" elongated pattern approximately 1 1/2" wide in the middle. Fluid flow should cover, but not puddle. You will be applying two thin coats. Spray the coating on in a cross pattern and 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. **Allow the Nanotech Marine Coating to CURE for 7 FULL DAYS prior to launch.**

Spray Method - Large Yachts & Ships

Spraying is the preferred method of application. Cover 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. Take necessary precautions against natural elements. On large projects Nanotech Marine Coating will most likely be in 55 gallon drums or 275 gallon totes. **You will need to insert a drum or tot agitator into the container to re-suspend the nanoparticles 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 airless 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 in a thin layer. (Wet Film Thickness (WFT) of 2-3). 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 MORE THAN 15 MINUTES OR SECOND COAT WILL NOT ADHERE AND WILL PEEL OFF, AFTER COMPLETION OF COATING, ALLOW TO CURE FOR A FULL 7 DAYS BEFORE LAUNCH.**

Roller Method - Hulls

Cove 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, and that there is no chance of rain for a MINIMUM of 5 hours after the estimated time of completion of the coating process. Take necessary precautions against natural elements. Shake the container well (typically 1/4" of the nanoparticles will have settled). Shake the contents thoroughly for several minutes to re-suspend the nanoparticles. Make certain to agitate contents at least every 10 to 15 minutes during the application process to re-suspend the nanoparticles to ensure proper performance. Using a high density, ultra smooth foam roller (or 1/4" 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 with a WFT of 2-3. Make certain to apply coating thin. The second coat **MUST be applied within 10-15 minutes (while the first coat is still tacky).** 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 for the second coat can to bond to the first coat. **Allow coating to CURE A FULL 7 DAYS 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. Tented and enclosed areas should always be supplied with fresh air and have plenty ventilation. 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. Take necessary precautions against natural elements.

Underwater Hardware

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





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Drying Time

Drying Time (at 77° F, 50% humidity)
Temperature and humidity dependent.
Touch: 1 hour
Through: 2-4 hours
Full Cure: 7 Days

Work Interruption

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 NanoTech Marine Coating over that 4" abraded area as a lap joint and continue the coating.

Clean Up

Thoroughly clean tools and flush equipment immediately with acetone before product dries. Once NanoTech Marine Coating dries it cannot be cleaned off with solvents.

Cautions

- 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, move to fresh air. Call physician immediately if physical difficulties occur.
- Wear butyl-rubber gloves and other skin protection to avoid skin 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 accidentally swallowed rinse mouth with fresh water for 15 minutes and seek immediate medical attention.
- Ensure excessive ventilation when working in enclosed areas.

