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## DESCRIPTION

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Premera MAR is a 2-part coating system. Part A is MAR. Part B is Catalyst; Premera T4 MAR C (mixed 1:1). Premera MAR is a very lightweight, high-durability, clear and extremely smooth coating for ship and boat hulls. Premera MAR contains zero pesticides and zero heavy metals. This quartz-based coating inhibits the growth of most marine grasses, barnacles, and mussels from metal and fiberglass. Premera MAR also increase fuel savings while reducing cleaning maintenance. Premera MAR creates a very low friction surface that facilitates smoother movement through water while severely limiting the ability of marine organisms to attach onto treated surfaces. Premera MAR may be used on metal and fiberglass hulls, and non-ferrous metal underwater running gear such as propellers, rudders, strainers, shafts, struts and trim tabs. Premera MAR is not suitable for use on wood hulls.

Premera MAR prevents liquid seepage through concrete pores, and is effective coating in protecting concrete ponds and pipes. Premera MAR further benefits pipes by reducing drag and energy costs to move liquids through pipelines.

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## FEATURES

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- Resistant against marine growth and environmental damage
- Excellent abrasion and scratch resistance
- Excellent impact resistance
- Superior resistance to rust, moisture, corrosion, salt spray, acid rain, oxidation ...
- Resistant to wind drag, dirt build up, ice buildup and animal and bird waste damage
- UV resistant
- Energy efficient
- Virtually invisible
- Reduced maintenance costs
- Extended life of the substrate
- Non-breathable

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## TYPICAL USES

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- Coating for ship and boat hulls
- Suitable for all underwater non-ferrous metals, painted steel hulls, and concrete

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## COLORS

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Clear to slight amber to rose. Always dries clear. (depending on temp and humidity) always dries clear. Finish: gloss and Satin

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## PACKAGING

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1 quarts, 1 gallon buckets, 5 gallon pails, 55 gallon drums, 275 gallon totes

### COVERAGE

Calculation for theoretical coverage: 500 – 800 Ft<sup>2</sup>/gal @ Recommended spread rate 2 – 3 mils Wet, 1.2– 1.8 mils Dry

Coverage will vary depending on the porosity and texture of the substrate and application. Most applications require 2 coat., wet-on-tack application.

### STORAGE

Twelve to fifteen months in factory delivered, unopened drums. Store on pallets and keep away from extreme heat, freezing, and moisture. Store at temperatures between 50 °F and 80 °F (10 °C and 27 °C).

### MIXING

Ready to use. There is no need for mixing or diluting.

TECHNICAL DATA (All values @ 77 °F / 25 °C)	US	Metric
Volatile organic compounds (ASTM D2369)	< 0.83 lb./gal	< 100 gm/ liter
Theoretical coverage	500 – 800 Ft <sup>2</sup> /gal @ 1.2-1.8 mils DFT	12-20 m <sup>2</sup> /liter @ 30-45 microns
Specific Gravity of materials (ASTM D792)	7.1 lbs./gal	0.85 kg/ liter
Shelf life @ 77 °F /25 °C	12-24 Months	12-24 Months
Flash point - pensky martin closed cup	<77 °F	<25 °C
Application Temperature	45 – 105 °F	7 – 40 °C
Acidic salt spray, 1000 hrs. (ASTM G85-11)	10 out of 10	10 out of 10
Blistering of paints, 1000 hrs. (ASTM D-7140-02)	10 out of 10	10 out of 10
Rusting on painted steel surfaces, 1000 hrs. (ASTM D-610-08)	10 out of 10	10 out of 10
Accelerated weathering exposure, 1000 hrs. (ASTM D1654-08)	10 out of 10	10 out of 10
Fluorescent UV-Condensation, 1000 hrs. (ASTM D4587-11)	10 out of 10	10 out of 10
Cyclic salt fog UV exposure of painted metals, 1000 hrs., (ASTM D5894-10)	10 out of 10	10 out of 10
Film hardness (ASTM D1353)	39.11	39.11
Film hardness (ASTM D3363)	7H	7H

Corrosion and filiform, 1000 hrs.	No corrosion or filiform
<b>PROCESSING PROPERTIES (Under standard lab conditions)</b>	
Touch Dry	2-3 hours
Dry Through	3-5 hours
Walk on	8-12 hours
Resubmerge	Min 72 hours
Recoat interval	10-15 minutes
Full Cure	7 Days
<i>Properties and values are highly dependent on equipment, spray gun, mix chamber temperature, pressure and related parameters. Values are slightly different for clear. Variations are possible and expected.</i>	

### 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 MAR 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 Premera MAR 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 MAR 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 an approved cleaner, clean the entire surface to remove any contaminates. Rinse clean with fresh water and dry. Once dry, then apply two coats of Premera MAR 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 an approved cleaner. Rinse with fresh water and dry completely. Then apply two coats of Premera MAR, 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:

Stir the contents thoroughly to re-suspend the nano particles that have settled to the bottom. (You should feel a thick layer of sediment with your stir stick in the bottom of the container. This all has to be re-suspended in the liquid to ensure performance of the coating). Make certain to re-stir every 15-20 minutes to re-suspend the settling nano particles during the application process to ensure proper performance of the coating.

- 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. Premera MAR is a two component product consisting of 1:1 MAR and 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 while still tacky. Allow the MAR to cure for 72 hours prior to launch.

- Spray Application on Large Yachts & Ships:

Spraying is the preferred method of application. Premera MAR is a 2 component product requiring 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, Premera MAR 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 72 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 72 hours before launching.

- 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 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 an approved cleaner. Then rinse with fresh water and allow to dry. Before Premera MAR 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 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 Quick Seal & Enhance application instructions). Premera MAR is best applied by a pump sprayer. On concrete prepared with Quick Seal & Enhance, the use of 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 72 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 an approved cleaner. Then rinse with fresh water and allow to dry. Before MAR 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 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 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 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 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 72 hours before emersion.

## EQUIPMENT CLEAN UP

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After application, equipment should be cleaned by pouring a solvent (acetone, methyl acetate, TBA, or similar) into device and spraying out to "flush out" any remaining product from the lines. After one flush out, repeat for 2 total flushes. Once coating dries, it cannot be cleaned off with solvents.

## **LIMITATIONS**

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As treated and untreated surfaces look similar, finish work on an obvious point such as a corner or mark where you have stopped. When you start work again you can apply over the dry edge without sanding.

**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 over spray dust. Tented and enclosed areas always require to be positively supplied with fresh air and have ventilated exhaust to outside using fans. Never spray near any open flame or any possible source of ignition such as pilot light, or anything that may spark, as this may cause ignition and explosion of the fumes and vapors. (In enclosed areas, make sure to have an observer watching the applicator for any signs of physical distress.)

## **WARRANTIES AND DISCLAIMERS**

*Nukote Coating Systems International, a Nevada, USA Corporation warrants that this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper mixture and application of the components by the applicator. Nukote Coating Systems has no role in the application of the finished polymer other than to manufacture and supply its two components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of plural component equipment and application of plural component materials. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Nukote Coating Systems International and executed under seal by a company officer.*