
DESCRIPTION

Premera MAR-1K is a very lightweight, high-durability, clear and extremely smooth coating for underwater assets. Premera MAR-1K contains zero heavy metals. This quartz-based coating inhibits the growth of most marine grasses, barnacles, and mussels from metal and concrete. Premera MAR-1K creates a very low friction surface severely limiting the ability of marine organisms to attach onto treated surfaces and removes the bacterial food source for fouling to be able to grow. Premera MAR-1K may be used on metal and concrete. Premera MAR-1K is not suitable for use on wood.

Premera MAR-1K prevents liquid seepage through concrete pores, and is effective coating in protecting concrete ponds and pipes. Premera MAR-1K further benefits pipes by reducing drag and energy costs to move liquids through pipelines.

FEATURES

- Inhibits the growth of most marine grasses, barnacles, and mussels
- 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
- Creates a very low friction surface

TYPICAL USES

- Suitable for all underwater or submerged metal and concrete surfaces
- Protection against corrosion, biofouling/marine growth, abrasion, fuels, chlorides, UV and water damage.

COLORS

Clear to slight amber to rose. (depending on temp and humidity) always dries clear.

PACKAGING

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

COVERAGE

Calculation for theoretical coverage: 500 – 800 Ft²/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 ² /gal @ 1.2-1.8 mils DFT	12-20 m ² /liter @ 30-45 microns
Specific Gravity of materials (ASTM D792)	7.36 lbs./gal	0.88 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	
PROCESSING PROPERTIES (Under standard lab conditions)		
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

All Metals: Surface must be clean, dry and in sound condition. Remove all oil, dust, grease, dirt and other foreign material from metal. Remove scale and light to medium rust. Heavy rust must be sandblasted or ground off. Recommended: use a white rag with cleaner to wipe the surface to inspect surface condition. If the rag remains white, your surface is clean. If the rag turns dark or shows evidence of residue, clean away remaining impurities.

New Iron & Steel: Sandblast, grind or otherwise remove 100% of slag from hot rolled steel, as surface tension of coatings adhere to slag and pull away from steel, causing delamination.

If desired, prime bare metal with rust and corrosion primer per manufacturer’s instructions. Apply single coat of Premera MAR-1K after primer has cured per manufacturer’s instructions. Be sure to follow primer manufacturer’s application time to allow Premera MAR-1K to anchor properly. If application window has passed, abrade the surface by sanding with 220 grit sandpaper to achieve suitable anchor system for the Premera MAR-1K.

If applying Premera MAR-1K over steel or iron that has no primer, apply two coats of Premera MAR-1K wet over tack no more than 15 minutes apart to ensure micropores are filled properly and completely.

Iron or steel with existing primer or paint: Inspect condition of the primer or paint to ensure it is sound and free of peeling or chips and well adhered to surface. If primer or paint is damaged beyond repair, sandblast to minimum Commercial Blast Clean SSPC-SP-6 method to completely remove damaged paint or primer, then repaint if desired. If paint or primer is not too badly damaged, either abrade off peeling paint or primer until you reach a solid base coat, or repair by sanding with 220 grit sandpaper or lower. Re-paint as needed. Recommended: When re-painted areas are completely dry and cured, wipe surface with cleaner, followed by wipe-down with a damp rag with fresh water. Once surface is clean and dry, apply one coat of Premera MAR-1K.

Aluminum, Copper, Brass, Bronze, Galvanized Steel & Stainless Steel: Apply one coat of Premera MAR-1K.

Powder Coated Metal: Inspect surface to ensure there are no breaches in the powder coating. If breach discovered, re-coat or prime with matching paint to touch up area. Apply one coat of Premera MAR-1K.

APPLICATION:

REMEMBER: 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 WET FOR A FULL 48 HOURS.

Application Instructions - Metal

Metal composition, methods of application and environments vary. It is important to test any coating, including Premera MAR-1K, in an inconspicuous location prior to full application to ensure desired adhesion and appearance is achieved. Original surface appearance will be enhanced slightly based on choice of gloss, satin, or matte finish. Although Premera MAR-1K is a clear coat, coating may slightly alter white paints or powder coats. Always test white

surfaces in inconspicuous location to determine degree and acceptability of any potential alteration in color intensity or appearance.

As with most metal finishes, spray application of Premera MAR-1K is recommended to achieve optimum finish and appearance. Always mask off any adjacent surfaces to protect from drips or accidental coating.

If surface configuration or location make spray application infeasible, coating may be brushed using a fine China bristle brush, high-density, rolled on using an ultra-smooth foam roller, or dip coated. Alternate applications will not yield the same coverage nor result in optimum smooth finish achieved through spray application.

Mask off adjacent surfaces and items to prevent inadvertent drips or coating. Ambient temperature should be between 45° F and 105° F, relative humidity 90% or less with no chance of precipitation (including morning dew) or dampening surface for a minimum of 5 hours after the estimated time of process completion.

Stir contents of Premera MAR-1K container thoroughly to re-suspend nanoparticles that may have settled to the bottom to ensure optimal coating performance. Re-stir every 15-20 minutes prevent settling of nanoparticles during the application process.

Spray Application: Apply using high volume low pressure sprayer (HVLP) with a 1.0-1.3 spray tip and air pressure set at 25 to 30 psi. Spray test pattern to ensure suitable 8" to 10" elongated spray pattern is achieved (approximately 1 ½" wide in the middle and fluid enough to cover but not puddle). Apply one thin coat, wet-on-tack, 2-3 WFT, top to bottom, then right to left, keeping a wet edge. If applying over steel or iron that has no primer, second coat must be applied within 10-15 minutes while first coat is still tacky for optimum results.

AFTER COMPLETION OF COATING, DO NOT WET FOR FULL 48 HOURS.

Blowing wind will affect the quality of the finish, may disrupt the spray pattern from the HVLP sprayer and can contribute to contamination of the finish. Recommended: erect a windscreen to protect the area prior to beginning the coating application.

CAUTION

If using spray application method in an enclosed space, tent off spray area using plastic tarps to prevent spray mist or overspray from adhering to unintended surfaces or objects. Use fans to supply positive fresh air and ventilate exhaust to outside enclosed or tented area. To avoid ignition or explosion of fumes or vapors, never conduct spray application near an open flame or possible source of ignition such as pilot light, or anything may create sparks. OSHA rules dictate an observer should monitor applicator for any signs of physical distress when applying coatings in enclosed areas.

Roller Application: Use a high density ultra-smooth foam roller or ¼" nap roller to apply the coating in an up and down then left to right pattern to ensure complete coverage of the surface. Avoid overworking coating. Apply coating thinly, 2.0 to 3.0 wet film thicknesses (WFT) and continue forward. Avoid down pressure on the roller for best results in finish appearance.

Brush Application: Use high-quality China bristle to apply Premera MAR-1K in a cross-pattern; up and down, then left and right as quickly as possible. Avoid overworking coating, as it dries quickly. Avoid down pressure on the brush for best results in finish appearance. Apply light strokes using the tip brush to smooth out coating if necessary. Desired wet film thickness (WFT) is approximately 2.0 to 2.5 mils.

Dip Application: Apply a blanket of nitrogen gas over Premera MAR-1K in dip tank to prevent flashing of solvents and evaporation of product. Dip and agitate items (back and forth, up and down); remove to dry rack.

SURFACE PREPARATION

All Concrete: Surface must be clean, dry, and in sound condition. Remove oil, dust, grease, dirt and other foreign material. Surface that has retained oil must be completely free from further wicking action which will prevent a proper coating bond.

IMPORTANT; REMOVE SILICON & EXISTING COATINGS.

Premera MAR-1K will not adhere to silicone or polymer-modified grout. Conduct a simple test to determine if surface previously sealed or coated, sprinkle water onto the surface. If water is absorbed and surface becomes darkens, it has not been sealed. If water beads, coating or sealer exist and must be removed before applying Premera MAR-1K. Use appropriate cleaner to remove silicon or existing sealer. Rinse with fresh water and allow to dry until moisture content is below 13% (level of dryness required for coating bonding).

Pre-seal unsealed or porous concrete with quality no-silicon sealer to prevent concrete surface from absorbing abundance of Premera MAR-1K, and rendering it ineffective. Recommended: Premera AT1 QSE.

New Concrete or Masonry: Inspect for sound condition. Clean the surface of all foreign material, dirt, dust, grease, oil, loose particles, laitance, sealers, curing or release agents. Rinse with fresh water and allow to dry until moisture content is below 13% (level of dryness required for coating bonding). Smooth surfaces should be abraded with 220 grit sandpaper, sand/bead blasted or ground with a floor machine. Test surface for proper PH (7 to 9).

Previously Painted Surfaces: Inspect for sound condition. Clean the surface of all foreign material, dirt, dust, grease, oil, loose particles, or sealers. Rinse with fresh water and allow to dry until moisture content is below 13% (level of dryness required for coating bonding). If existing paint is peeling or badly weathered, repaint may be necessary. If re-paint is required proceed with the process outlined by the paint manufacturer, then apply Premera MAR-1K following the paint manufacturer's cure time. If re-paint is not necessary, abrade paint to 220 grit before applying Premera MAR-1K.

APPLICATION:

Application Instructions – Metal

Due to the wide variety of texture and porosity of concrete and masonry surfaces and various methods of application and environments, test Premera MAR-1K in an inconspicuous location to ensure adhesion and determine that the desired look is achieved. There will be a slight enhancement or change in appearance from the natural surface, along with a shine, either gloss or satin, depending which finish is chosen.

Premera MAR-1K can be applied with an acetone/alcohol proof pump sprayer with a grey or red fan tip, or rolled on using a high-density ultra-smooth roller. Mask off any adjacent surfaces to avoid inadvertent drips or coating. Ambient temperature should be between 45° F and 105° F, relative humidity 90% or less with no chance of precipitation (including morning dew) or dampening surface for a minimum of 5 hours after the estimated time of process completion.

Stir contents of Premera MAR-1K container thoroughly to re-suspend nanoparticles that may have settled to the bottom to ensure optimal coating performance. Re-stir every 15-20 minutes prevent settling of nanoparticles during the application process.

Pump Spray Application: Use an SP acetone/alcohol proof pump sprayer or equivalent with red fan tip and an even amount of pressure while spraying. Recommended: hook sprayer to a compressor and air hose with a quick release to the valve stem to supply a constant 35 PSI for more even flow and finish. Begin flow with tip in a separate container to avoid initial spitting of product onto surface from air trapped in the spray wand. Remember to release flow into separate container when you stop spraying to avoid drips onto surface after handle is released. Hold the tip perpendicular, at a distance of 10" to 12" from surface you want to coat. Move wand smoothly in a right to left, then up and down pattern to fully cover surface. Product should go on thin; do not allow puddling. Recommended: spray a few trials onto cardboard to ensure spray coverage and thinness is achieved before attempting an actual project. Do not apply a second coat unless there is a flaw in your application of the first coat. If a second coat is necessary, wait 24 hours for the surface to dry, abrade the surface with 220 grit sandpaper, clean floor of dust and reapply.

Roller Application for Concrete: Follow ambient guidelines noted above. Use a high density ultra-smooth foam roller or a ¼" nap to roll on the coating in a back and forth, and up and down pattern, keeping the roller continuously

wet with the coating. Do not apply too thick. Do not over apply. Apply thinly, 2.0 to 3.0 wet film thickness (WFT) one coat application. Let coating dry and cure for 48 hours before immersion.

Concrete Surfaces, Ponds, Tanks and Aqueducts: For best results, apply Premera MAR-1K to concrete using a pump sprayer. Remove oil, grease and dirt using appropriate cleaner. Rinse with fresh water and let dry. Seal concrete before coating to prevent absorption into surface. Recommended sealing: When concrete surface is clean and dry (less than 13% moisture), apply Premera AT1 QSE to pre-seal the surface. Depending on the porosity and condition of the concrete, it may take several coats to seal the surface. (See Premera AT1 QSE application instructions).

NOTE: On concrete prepared with Premera AT1 QSE. Use an SP or similar acetone/alcohol proof pump sprayer equipped with a red fan tip. Mask off adjacent surfaces to prevent inadvertent coating. If applying outdoors, ensure ambient temperature is between 45° F and 105° F, 90% or less relative humidity, with no chance of precipitation for a minimum of 5 hours after the estimated time of completion of the coating process, including morning dew that may dampen the surface before it has dried.

Stir well to re-suspend nanoparticles, as there will be settlement of the nanoparticles in the bottom of the. Re-stir contents at least every 10 to 15 minutes during the application process to re-suspend nanoparticles and ensure proper performance of the coating.

Hold the tip of the wand approximately 8” to 10” from the surface and spray in a back and forth, up and down pattern to cover the entire surface evenly. Do not over apply. Apply thinly, 2.0 to 3.0 wet film thickness (WFT) one coat only. Let coating dry and cure for 48 hours before immersion.

Interruption of work

Dry coated areas look similar in appearance to untreated areas; may be difficult to determine the difference if work is interrupted. Recommended: plan for interruption of work by stopping at an obvious marked point (tape, etc.) so work to avoid untreated areas. Recommencing: If final edge of previous work is dry, sand edge to 220 grit and wipe free of dust to allow coating to anchor. 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 Premera MAR-1K over the 4” abraded area as a lap joint and continue to apply the balance of the coating.

EQUIPMENT CLEAN UP

Clean tools and flush equipment with acetone immediately after use. Cleanup must occur while coating is wet. Once coating is dry, neither acetone or any other solvent will successfully clean tools and equipment.

CAUTION

Always wear OSHA approved 1910.134 and ANSI Z88 2 Respiratory protection. Fresh air and exhaust are required in the work area. If inhaled, remove affected person to fresh air. Call physician immediately if breathing difficulties occur. Wear butyl-rubber gloves and other protection to avoid contact with skin. In the event of contact with skin, wash affect area thoroughly with soap and water. Chemical safety goggles or splash shields are required. Do not wear contacts without eye protection. Immediately flush eyes with water for 15 minutes after contact and get medical attention. If accidentally swallowed, rinse mouth thoroughly and obtain immediate medical attention. OSHA rules dictate an observer should monitor applicator for any signs of physical distress when applying coatings in enclosed areas.

Care and Maintenance

Laws and regulations for hull maintenance may vary based on location. Always know and refer to local guidelines for cleaning and maintenance before following any, including these, care and maintenance instructions. “On land” cleaning, where permitted: Wash surface with a low-pressure wash or wipe down with damp white Scotch Brite. Most areas required licensed professional hull cleaning service for cleaning in or near water.

If an area of the coated surface is damaged, suffers deep abrasion or filiform due to heavy impact, lightly sand the affected area with 220 grit sandpaper and reapply touch-up coats to Premera MAR-1K. If substrate is damaged, make necessary repairs first, then apply touch-ups.

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.