WS EPR- Full-Wet/Underwater Surface Epoxy Coating

Product Description

WS EPR is a corrosion control epoxy coating formulation applicable to completely wet or underwater surfaces. Ordinary corrosion-control maintenance operations cannot be performed unless the surface to be treated is completely dry. Application speed and performance are achieved through the coating formulation that allows excessive loads of water or humidity present on the application substrate. **WS EPR** enhances operational efficiency by reducing maintenance operation cost, effort, and preparation works.

Recommended Use

Highly recommended for ballast tank surfaces after moderate hydro-blasting operations alone. Extensively used as a solvent-free tank lining in petrochemical, offshore crude or refined oil, and greywater tanks. Underwater structures, piping, splash zones, jetties, and metal tidal zones are also significant application areas.

Key Benefits

- It can be applied on wet surfaces (even underwater).
- Excellent corrosion resistance prolongs the lifetime of the substrate.
- Surface tolerant: Can be applied directly on hydro-blasted or SSPC-SP7 prepared substrates.
- Solvent-free: 100% Solids content assures safer application without thinner hazards.
- Applicability: Air- or airless sprayers, brushes, or rollers may be used.
- Fast curing and immersion time (continues to cure when immersed in water or in poorly ventilated conditions) allows protected surfaces to return to service more rapidly.
- No need for dehumidifiers before application: Reduction of maintenance cost and turnaround time.

Technical Specifications

Type:	Epoxy, based on biobased, Mannich-type curing agents.
Components:	Base A & Hardener B
Colour:	Red / Grey
Mixing Ratio (Base A: Hardener B):	4,0:1 by volume 4,7:1 by weight
Thinner/Cleaning Solvent:	No Thinning required/ NanoPhos Thinner A
VOC (Volatile Organic Compounds):	<10 g/L
Solids (%vol.):	100 (solventless formulation)
Density:	Base A: 1,31 $Kg.L^{-1}$ @ 20°C (68 °F) Hardener B: 1,12 $Kg.L^{-1}$ @ 20°C (68 °F) Mix: 1,27 $Kg.L^{-1}$ @ 20°C (68 °F)

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Overcoating:	Min: 4h @ 10°C (50 °F) - Max: 36 h @ 10 °C (50 °F) Min: 2h @ 20°C (68 °F) – Max: 24 h @ 20 °C (68 °F) Min: 1h @ 30°C (86 °F) – Max: 12h @ 30°C (86 °F)
Time to Ballast:	8h @ 0°C (32 °F) 6h @ 5°C (41 °F) 4,5h @ 10°C (50 °F) 3,5h @ 15°C (59 °F) 3h @ 20°C (68 °F) 2h @ 30°C (86 °F)
Pot Life:	60min @ 5°C (41 °F) 40min @ 15°C (59 °F) 15min @ 25°C (77 °F) Avoid mixing Base A and Hardener B if their temperature exceeds 20°C (68 °F) to prevent excessive shortening of pot life. Alternatively, minimize volumes used to avoid waste.
Flash Point:	>72 °C (162 °F, no thinners added)
Ambient Humidity Tolerance:	From 30% RH to 100% RH
Abrasion Resistance:	Excellent
Water Resistance:	Excellent
Cathodic Disbondment Resistance:	Excellent
Substrate Application Temperature:	From -10°C (14 °F) to +25°C (77 °F)

(*)Drying times are prolonged under conditions of low temperatures and high humidity.

Film Thickness per Coat

	Minimum	Maximum	Recommended
Dry Film Thickness (μm)	120	250	200
Wet Film Thickness (μm)	120	250	200
Coverage Rate (m^2/L)	8,3	4	5

Surface Preparation

Remove oil, grease, and other contaminants by suitable detergent cleaning. Remove salts, detergents, and other contaminants by high-pressure freshwater cleaning. Surface tolerance requirements include Sa 1 for abrasive blasting, WJ-4 for water jetting, and St 2 for mechanical treatment.

Application Instructions

Airless Spraying application

Induction time:	< One minute
Pump:	Minimum 45:1 ratio (preferably 63:1)

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Line hose:	Use ⅜" (10mm) hose to maximum 20m Use as short line as possible.
Spraying tip:	25-31 inch/1000
Minimum Pressure at Nozzle tip:	180bar (2600psi)

Always empty the entire content of the Hardener B container into the Base A container and mix thoroughly until a uniform and consistent mix is obtained. Take particular care to scrape the sides and bottom of the container. It is recommended that mechanical mixing be employed, using a Jiffy mixer on a heavy-duty, medium-speed electric drill. Apply a wet coat of desired wet thickness in even parallel passes. Do not overapply to prevent sagging. Vertical and horizontal passes should seal the surface and achieve desired DFT. Overlap each pass to avoid bare areas, pinholes, and holidays, giving special attention to cones, welds, rough spots, edges, and cavities.

Important notice: Spray application does not assure that the WS EPR formulation will be delivered on the substrate, in case a thick water layer exists. In the case of ponding water or a water layer that prevents the delivery of the WS EPR formulation on the application substrate, prefer roller application. Alternatively, use pressurized air to eliminate water excess.

Brush or Roller Application

Always empty the entire content of the Hardener B container into the Base A container and mix thoroughly until a uniform and consistent mix is obtained. Take particular care to scrape the sides and bottom of the container. It is recommended that mechanical mixing be employed, using a Jiffy mixer on a heavy-duty, medium-speed electric drill. Prefer urethane-based brushes or foam rollers, suitable for solvent-based systems. Load the brush roller with a moderate amount of the mixture. Brush or roll the excess out on the ramp part of the container to get a uniform coating on the roller. Brush or roll the mixture lightly and randomly over an area of approximately 60cm x 60cm (2 ft x 2 ft), evenly over the area. As the brush or roller dries out, increase pressure enough to spread the mixture into a thin, even film. Increase the coverage area if necessary to distribute the film more thinly and evenly. Finish the area with long, light, even strokes to reduce brush/roller marks. Overlap the previously coated area to blend both areas together. Coat as many small working areas as possible with each batch of mixture. If a batch begins to thicken before it can be applied, discard it and mix a fresh, smaller batch. Alternate the direction in which each coat is tipped off: 1st coat vertical, 2nd coat horizontal, 3rd coat vertical, etc.

Storage

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Base A: Store in the original closed container in a well-ventilated environment with a temperature above 0◦C (32◦F) and below 35◦C (95◦F), away from sunlight and frost, for up to 24 months.
Hardener B: Store in the original closed container in a well-ventilated environment with a temperature above 5◦C (32◦F) and below 35◦C (95◦F), away from sunlight and frost, for up to 24 months.

Health and Safety

Read the product label before use. The Safety Data Sheet is available on www.NanoPhos.com or request by contacting NanoPhos by email: info@NanoPhos.com or by phone: (+30)2292069312.

Available Packaging

Base A	**Hardener B**
20L metal canister 16L Base A content	5L metal canister 4L Hardener B content

Base A	**Hardener B**
5L metal canister 4L Base A content	1L metal canister 1L Hardener B content

Disclaimer

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