Revision Date 3/02/16

TESLAN® 4000 (ISO 20340) LOW VOC URETHANE TOPCOAT

Product Description

TESLAN® 4000 LOW VOC URETHANE TOPCOAT is a solvent-based, two-component, urethane topcoat designed for application over TESLAN® 11XX ZN-CNT or 15XX AL-CNT PRIMERS (with or without EPOXY INTERMEDIATES) for offshore environments per ISO 20340. This topcoat is highly recommended for atmospheric exposure conditions where excellent UV/weathering resistance is required.

Recommended Uses

Use directly over TESLAN® 11XX ZN-CNT or 15XX AL-CNT PRIMERS and 2XXX EPOXY INTERMEDIATES for the protection of steel surfaces exposed to offshore environments of corrosivity category C5-M (ISO 20340). Project applications include:

- Offshore Platforms and Related Structures
- Ships and Barges
- Locks and Dams

Product Characteristics (mixed)

Finish:	Gloss
Color:	White (other colors available)
Volume Solids:	65% (unreduced) 63% @ 5% reduction 61% @10% reduction
Weight Solids:	79% (unreduced)
Mix Ratio:	3:1 by Volume (Parts A: Parts B)
Wet Density:	12.1 lbs/gal (1.5 kg/l) (unreduced)
Dry Film Density:	14.6 lbs/gal (1.8 kg/l)
Pot Life:	2 hrs @ 100ºF/38ºC 4 hrs @ 77ºF/25ºC 6 hrs @ 50ºF/10ºC
VOC:	1.8 lbs/gal (216 g/l) (unreduced) 1.8 lbs/gal (216 g/l) @ 5% reduction* 1.8 lbs/gal (216 g/l) @10% reduction*
Viscosity @77ºF(25C):	85 Krebs Units (unreduced)
Sweat-in-Time:	Not Required

*with TESLAN® 0902 Type I Urethane Reducer

Application Guidelines

This product is designed for application directly to properly primed steel and other metal substrates using conventional air-spray and airless-spray techniques. Brush and roller application is recommended for small areas and for stripe coating,

Recommended Film Thicknesses (unreduced)
For 2 or 3 coat system with total Nominal Dry Film Thickness (NDFT) of ≥ 11 mils (275 microns) per ISO 20340 C5-M (Zn (R)):

	Min.	Max.
Wet mils (microns) per coat*	3 (75)	6 (150)
Dry mils (microns) per coat*	2 (50)	4 (100)
Coverage in sq ft/gal (m^2/l)	261 (6.4)	521 (12.8)

Coverage in sq ft/gal (m^2/l) per dry mil (25 microns): 1043 (25.5)

***Adjust as needed to ensure a total NDFT of ≥ 11 mils (275 microns) per ISO 20340 C5-M (Zn (R)):**

If reduced more than 5%, do not exceed dry film thickness of 4 mils/100 microns (8 mils/200 microns wet) in single coats.

Drying Schedule @ 5 mils wet (125 microns)

	@50ºF(10ºC)**	@77ºF(25C)**	@100F(38C)**
To Touch:	8 hrs	2 hrs	1 hrs
To Handle:	24 hrs	12 hrs	8 hrs
To Recoat w/ Urethane:			
minimum:	24 hrs	12 hrs	8 hrs
maximum:	6 months	6 months	6 months
To cure:	10 days	7 days	7 days

**50% RH

If maximum recoat time is exceeded, abrade surface and power wash before recoating. Drying time is temperature, humidity, and film thickness dependent.

Temperature/Humidity Requirements (air, surface, material)

Minimum: 50ºF (10ºC), 40% RH
Maximum: 100ºF (38ºC), 90% RH

The surface should be dry and at least 5ºF (3ºC) above the dew point.

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Surface Preparation

Prepare substrate and apply TESLAN® ZN-CNT or AL-CNT PRIMERS (with or without optional coating of TESLAN® EPOXY INTERMEDIATE), then apply this product. Carefully follow all recommended surface preparation, application guidelines, and recoat schedules for the primer and intermediate coatings. Surfaces to be top-coated should be clean, dry and in sound condition.

Weathered Organic Zinc Rich Primers
Sweep blast surface followed by power washing. Allow surface to completely dry before proceeding.

For application over an existing coating other than the above, contact Tesla NanoCoatings technical service for recommendations.

Mixing Procedures & Thinning Recommendations

Use an air-driven power mixer and keep material under agitation (as needed to prevent settling or separation) while applying this product. Slowly mix 3-parts component A with 1-parts component B by volume. Adjust mixer speed as needed to thoroughly blend the two components. Part A is a thixotropic material (may have a semi-solid appearance) which will become fluid upon agitation and when mixed with Part B. Strain through a 35 to 60 mesh (310 to 681 microns) screen before using. For extended spray application sessions, keep under low RPM agitation to prevent settling. For brush and roller application, stir occasionally to prevent settling.

Do not use mixed material beyond pot life limits.

Do not mix previous catalyzed material with freshly prepared material.

If needed, thin material up to 10% by volume using only **TESLAN® 0902 Type I Urethane Reducer.**

Product Application & Equipment Recommendations

For optimum protection, stripe coat all crevices, welds, and sharp angles by brush application. Use a medium bristle brush and avoid re-brushing. Roller application is not recommended.

Airless Spray

Pressure:	1500-2400 psi (103-166 bar)
Hose:	1/4 or 3/8 inches (6.4 or 9.5 mm)
Tip:	0.009-0.015 inches (225-375 microns)
Filter:	60 mesh (250 microns)
Reduction:	As needed up to 10% by volume
Equipment:	Graco or similar

Conventional Air-Spray

Pressure:	40-50 psi (2.8-3.4 bar)
Hose:	3/8 inches (9.5 mm)
Tip:	E
Filter:	60 mesh (250 microns)
Reduction:	As needed up to 10% by volume
Equipment:	Graco or similar

Cleanup

Immediately clean and flush all equipment with TESLAN® Urethane Reducers or other solvents compatible with solvent based urethane coatings (MEK, N-butyl acetate, etc.)

Recommended Primer Systems

TESLAN® 11XX ZN-CNT Epoxy Primers

--or--

TESLAN® 15XX AL-CNT Epoxy Primers

Recommended Intermediate Systems (Optional)

TESLAN® 2XXX Epoxy Intermediates

Recommended Thinners/Reducers

TESLAN® 0901 Type II Low VOC Epoxy Reducer
[VOC content: 2.4 lbs/gal (288 g/l)]

or

TESLAN® 0902 Type I Urethane Reducer
[VOC content: 7.3 lbs/gal (870 g/l)]

Safety/Storage/Disposal

Refer to Safety Data Sheets (SDS) before use.

Shelf Life (Parts A and B): 24 months, unopened (under recommended conditions). Store indoors at 40ºF (5ºC) to 100ºF (38ºC).

Dispose of unused material following all laws and regulations.

Disclaimer and Warranty

Tesla Nanocoatings Inc warrants only that its coatings represented herein meet the formulation standards of Tesla Nanocoatings Inc. Technical and application information herein is provided for the purpose of providing general properties of the coating and recommended coating application procedures. As application and environmental factors can vary significantly, due care should be exercised in the selection and use of this and any coating system.

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