

TESLAN® 1100 ZN-CNT LOW VOC PRIMER



Product Description

TESLAN® 1100 ZN-CNT LOW VOC PRIMER is a solvent-based, two-component, Zinc/CNT epoxy-polyamide primer designed for the protection of steel in severe offshore and coastal topside environments. This product incorporates carbon nanotubes (CNTs) together with sacrificial zinc dust for enhanced durability, increased protection from impact and mechanical damage and superior corrosion protection. Salt fog test results, and a long-term study by an independent laboratory show that combining TESLA's CNT technology with sacrificial zinc dust allows for a reduction in the zinc load required, while providing an improvement in performance in comparison to the traditional organic zinc-rich systems. TESLAN® 1100 ZN-CNT LOW VOC PRIMER can be directly topcoated without the use for an intermediate epoxy or urethane coating. For the most demanding applications, an intermediate coating is recommended. For use only in conjunction with recommended TESLAN® intermediate and topcoat systems.

Recommended Uses

For primary use directly on abrasive blasted steel surfaces. For optimal results, follow with the application of TESLAN® 2000 Epoxy-CNT intermediate and TESLAN® topcoat systems. Epoxy, Urethane and Polyaspartic-Hybrid topcoats are available.

Typical recommended applications include:

- Drilling Rigs and Offshore Platforms
- Storage Tanks & Process Vessels
- Pipelines & Equipment

Product Characteristics (mixed)

Color:	Black
Volume Solids:	67 ± 2% (unreduced) 64 ± 2% @ 5% reduction 61 ± 2% @ 10% reduction
Weight Solids:	84 ± 2% (unreduced)
Zn Content:	59% by Weight in Dry Film (Important - See Note 1 below)
Mix Ratio:	3:1 <u>by Volume</u> (Parts A: Parts B)
Wet Density:	14.7 lbs/gal (1.8 kg/l) (unreduced)
Dry Film Density:	18.4 lbs/gal (2.2 kg/l)
Pot Life:	2 hours @ 100°F/38°C 4 hours @ 77°F/25°C 6 hours @ 50°F/10°C
VOC:	1.6 lbs/gal (192 g/l) (unreduced) 1.6 lbs/gal (192 g/l) @ 5% reduction* 1.7 lbs/gal (204 g/l) @ 10% reduction*
Viscosity @77°F(25°C):	108 Krebs Units (unreduced)
Sweat-in-Time:	None Required
*Use only TESLAN® TYPE II LOW VOC EPOXY REDUCER.	

Note 1: TESLA's patented CNT technology, with a reduced zinc load, provides comparable or superior corrosion protection compared to organic zinc systems with much higher zinc loads. The US Army Corps of Engineers verified this in a 7+year immersion test in salt water.

Application Guidelines

This product is designed for application directly to properly prepared steel substrates, using conventional air-spray, air-assisted airless or airless spray equipment. Brush application is only recommended for small areas or for stripe coating. For application over existing coatings in sound condition, contact Tesla Nanocoatings Technical Service for surface preparation and application recommendations.

Recommended Film Thicknesses (unreduced)

	<u>Minimum</u>	<u>Maximum</u>
Wet mils (microns) per coat	6.0 (150)	12.0 (300)
Dry mils (microns) per coat	4.0 (100)	8.0 (200)

Theoretical Coverage (@ 4.0 mils / 200 microns dft): 268 ft²/gal
(6.7 m²/l)

If reduced more than 5%, do not exceed 12 mils / 300 microns wet film thickness or 8 mils / 200 microns dry film thickness in a single coat.

Drying Schedule @ 12 mils wet (300 microns)

	<u>@50°F(10°C)**</u>	<u>@77°F(25°C)**</u>	<u>@100°F(38°C)**</u>
To Touch:	6 hours	2 hours	1 hour
To Handle:	24 hours	8 hours	4 hours
To Full Cure:	10 days	7 days	7 days

To Recoat w/ TESLAN® Epoxy System:

Minimum:	12 hours	4 hours	2 hours
Maximum:	6 months	6 months	6 months

To Recoat w/ TESLAN® Urethane or Polyaspartic-Hybrid System:

Minimum:	48 hours	24 hours	16 hours
Maximum:	6 months	6 months	6 months

**At 50% Relative Humidity (RH)

Drying time is temperature, humidity, and film thickness dependent. If maximum recoat time is exceeded, abrade surface in accordance with SSPC SP 7 (NACE No. 4) or other TESLA approved method before recoating. Remove any residues from abrading process.

Temperature (Air, Surface, Material) / Humidity Requirements

Minimum: 50°F (10°C), 40% RH Maximum: 100°F (38°C), 90% RH

The surface should be dry and at least 5°F (3°C) above the dew point.

Surface Preparation

TESLAN® 1100 ZN-CNT LOW VOC PRIMER is designed for direct application to properly prepared bare metal substrates. For application over existing coatings, contact Tesla Nanocoatings Technical Service for specific recommendations. All surfaces must be clean, dry and in sound condition.

*Minimum Surface Preparation Requirements:*Steel - Severe Exposure

SSPC: SP10 Near-White Metal
NACE: No.2
ISO8501-1: Sa 2.5
Surface Profile: 1.0-3.0 mils (25-75 microns)

Steel - Moderate Exposure

SSPC: SP6 Commercial Blast
NACE: No. 3
ISO8501-1: Sa 2
Surface Profile: 1.0 -3.0 mi (25-75 micron)

Previously Coated Surfaces (with intact coating) or Other Surfaces

Contact Tesla Nanocoatings Technical Service for specific surface preparation requirements for application over previously coated surfaces and other substrates.

Mixing Procedures & Thinning Recommendations

DO NOT MIX PARTIAL KITS. Use an air-driven power mixer and keep material under agitation (as needed to prevent settling or separation) while applying this product. Slowly mix the 3-part Component A with the 1-part Component B by volume. Adjust mixer speed, as needed, to thoroughly blend the two components. Part A is a highly thixotropic material and may have a semi-solid appearance prior to mixing. It will become fluid upon agitation and after mixing with Part B. Strain mixed material through a 35 to 60 mesh (310 to 681 microns) screen prior to use. For extended spray application sessions, keep under low RPM agitation to prevent settling. For brush 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® TYPE II LOW VOC EPOXY 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 rebrushing. Roller application is not recommended.

Airless Spray

Pressure: 2400-4000 psi (165-275 bar)
Hose: 1/4 or 3/8 inches (6.4 or 9.5 mm)
Tip: 0.017-0.021 inches (430-535microns)
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: None

Reduction: As needed up to 10% by volume
Equipment: Graco or similar

Cleanup

Immediately clean and flush all equipment with TESLAN® Epoxy Reducers or other solvents compatible with solvent based epoxy coatings (MEK, xylene, etc.)

Recommended Intermediate/Topcoat SystemsFor Moderate UV / Weathering resistance

Optional TESLAN® 2000 EPOXY-CNT LOW VOC INTERMEDIATE
TESLAN® 3000 EPOXY LOW VOC TOPCOAT

For Maximum UV/ Weathering resistance

Optional TESLAN® 2000 EPOXY-CNT LOW VOC INTERMEDIATE
TESLAN® 4000 URETHANE LOW VOC TOPCOAT

-- or --

TESLAN® 5000 POLYASPARTIC-HYBRID LOW VOC TOPCOAT

Safety/Storage/Disposal**Refer to MSDS sheets before use.**

Shelf Life (Part A and B): 24 months, unopened (when stored under recommended conditions). Store in dry, shaded conditions at 40°F (5°C) to 100°F (38°C).

Dispose of unused material following all laws and regulations.

Contact Information**For technical assistance:**

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For sales assistance:

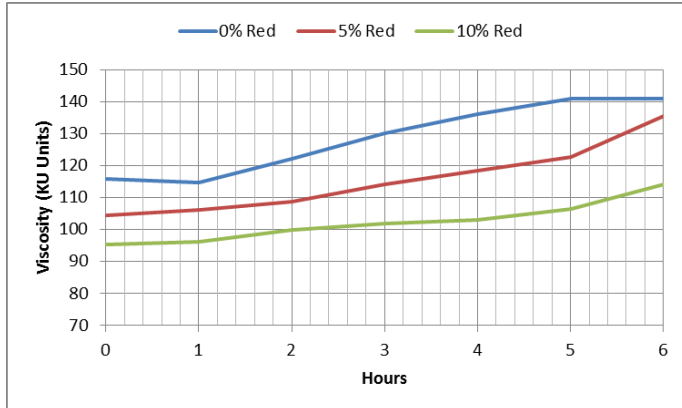
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Disclaimer and Warranty

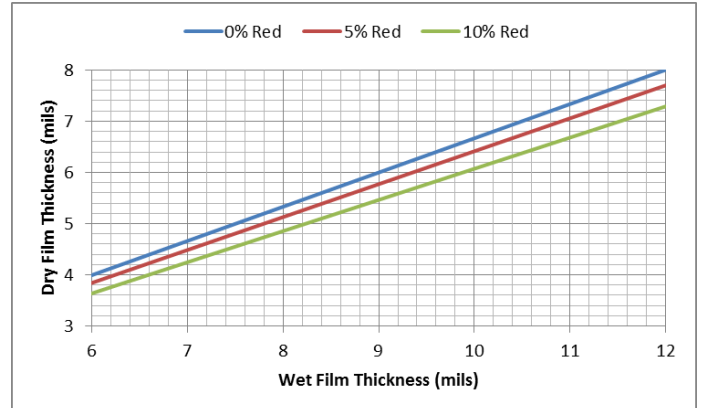
Tesla Nanocoatings Inc warrants only that its coatings represented herein meet the formulation standards of Tesla Nanocoatings Inc. Technical and application information herein is provided for the purpose of providing general properties of the coating and recommended coating application procedures. As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

Additional Information

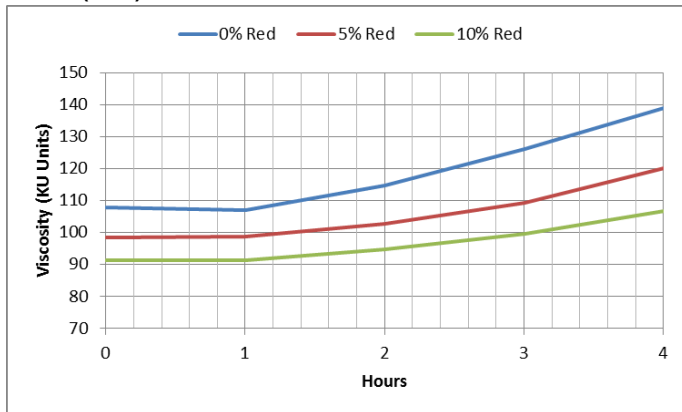
Viscosity (with 0%, 5%, 10% reduction) vs. Time After Catalyzing at 50°F (10°C).



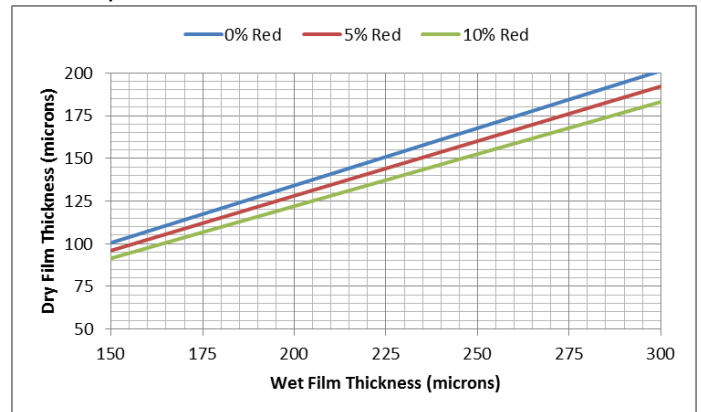
Wet Film Thickness vs. Dry Film Thickness (with 0%, 5%, 10% reduction) in mils.



Viscosity (with 0%, 5%, 10% reduction) vs. Time After Catalyzing at 77°F (25°C).



Wet Film Thickness vs. Dry Film Thickness (with 0%, 5%, 10% reduction) in microns.



Viscosity (0%, 5%, 10% reduction) vs. Time (after catalyzing) at 100°F (38°C).

