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TESLAN® 1101 (ISO 12944-9) ZN-CNT LOW VOC EPOXY PRIMER

Product Description

TESLAN® 1101 (ISO 12944-9) ZN-CNT LOW VOC EPOXY PRIMER is a NORSOK M501 tested solvent-based, two-component, Zinc/CNT epoxy primer designed for the protection of steel and metallic substrates in harsh environments per ISO 12944-9 including CX, IM4, tidal & splash zones. This product incorporates carbon nanotubes (CNTs) together with sacrificial zinc for enhanced durability and maximized corrosion inhibition. TESLAN® 1101 (ISO 12944-9) ZN-CNT LOW VOC EPOXY PRIMER can be directly top-coated utilizing patent pending 2 x 1 WET EDGE process with or without a stripe coat application. Use only in conjunction with recommended TESLAN® Topcoat systems.

Recommended Uses

For use in atmospheric and immersion offshore environments defined as category CX, IM4, tidal & splash zones (ISO 12944-9).
Project applications include:

- Offshore Platforms and Related Structures
- Wind Energy Turbines and Infrastructure
- Communication Structures
- Broadcast/Antennae Structures
- Power & Utility Infrastructure
- Ships and Barges
- Locks, Dams & Buoys
- Marine Thrusters
- Drill Ships

Product Characteristics (mixed)

Finish:	Semi-Gloss
Color:	**RAL 7012** Dark Gray
Volume Solids:	64 ± 2% (unreduced)
Weight Solids:	86 ± 2% (unreduced)
Zn Content:	75% by Weight in Dry Film
Mix Ratio:	4:1 by Volume (Parts A: Parts B)
Pot Life:	2 hrs @ 100ºF/38ºC 4 hrs @ 77ºF/25ºC 6 hrs @ 50ºF/10ºC
VOC:	2.3 lbs/gal (274 g/l) (unreduced) 2.5 lbs/gal (301 g/l) @ 5% reduction* 2.7 lbs/gal (321 g/l) @10% reduction*
Viscosity @77ºF(25ºC):	100 Krebs Units (unreduced)
Sweat-in-Time:	Not Required

***use only TESLAN® 0901 Type II Low VOC Epoxy Reducer**

Application Guidelines

This product is designed for application directly to properly cleaned and/or blasted steel substrates using traditional application equipment and techniques. Brush and roller application is recommended for areas where spray application is not feasible. For application over other metallic substrates or existing coatings in sound condition, contact Tesla NanoCoating's Sales Service for application recommendations.

Recommended Film Thickness (unreduced):

Teslan® 2-Coat System (1101 Primer + Topcoat) thickness recommendations:
CX (offshore) ≥ 11 mils (275 microns)
CX & IM4 (tidal & splash zones) ≥ 18 mils (450 microns)
IM4 (Immersion) ≥ 14 mils (350 microns)

	Min.	Max.
Wet mils (microns) per coat	12.5 (312)	19 (475)
Dry mils (microns) per coat	8 (200)	12 (300)

Note: For 3 coat systems contact Tesla NanoCoating's Sales Service for application recommendations.

Theoretical Coverage (@ 1.0 mils / 25 microns dft): 1026 ft^2/gal (25 m^2/l)

Drying Schedule @ 50% RH and 10 mils wet (250 microns)

	@50ºF(10ºC)	@77ºF(25ºC)	@100ºF(38ºC)
To Touch:	8 hrs	4 hrs	2 hrs
To Handle:	24 hrs	10 hrs	4 hrs
To Recoat w/ Epoxy:			
minimum:	1 hrs	0.5 hrs	0.5 hrs
maximum:	6 months	6 months	6 months
To Recoat w/ Urethane			
minimum:	12 hrs	2 hrs	1 hrs
maximum:	6 months	6 months	6 months
To cure:	10 days	7 days	7 days

Technical Service/R&D
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Sales Service
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Application Guidelines (cont.)

Drying and recoat times are temperature, humidity, and film thickness dependent. If maximum recoat time is exceeded or white corrosion is present on the surface, abrade surface in accordance with SSPC SP 7/NACE 4 or other TESLA approved method before recoating. Remove any residues from abrading process ensuring a clean, dry and contaminate free surface.

Temperature (Air, Surface, Material) / Humidity Requirements

Minimum: 50ºF(10ºC), 40% RH Maximum: 122ºF(50ºC), 90% RH

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

Maximum Continuous Operating Temperatures

Dry Conditions: 248ºF(120ºC)
Humid/Immersion: 194ºF(90ºC)

Surface Preparation

This product is designed for direct application to bare metal substrates. For application over an existing coating, contact Tesla NanoCoatings technical service for recommendations. All surfaces should be clean, dry, contaminate free and in sound condition.

Minimum Surface Preparation Requirements:

For Steel

Immersion Service SSPC SP10/NACE 2 Near-White Blast Cleaning
ISO8501-1: Sa 2.5
Surface Profile: 2-4 mil (50-100 micron)

(NOTE: Where blasting is not practical and conditions allow, prepare surface per SSPC SP11 Power Tool Cleaning to Bare Metal, achieving a minimum 2 mil (50 micron) profile).

Atmospheric Service SSPC SP6 /NACE 3 Commercial Blast
ISO8501-1: Sa 2
Surface Profile: 2-4 mil (50-100 micron)

(NOTE: Where blasting is not practical and conditions allow, prepare surface per SSPC SP15 Commercial Grade Power Tool Cleaning, or an ISO St 3, achieving a minimum 2 mil (50 micron) profile).

For application over other substrates or existing coatings in sound condition, contact Tesla NanoCoating's technical service for surface preparation recommendations.

Mixing Procedures & Thinning Recommendations

DO NOT MIX PARTIAL KITS. Mix component A individually until a smooth uniform consistency is achieved using a powered agitator with a clean all steel spiral ribbon mixer. Slowly mix component B into component A while component A is under agitation. Adjust mixing speed as needed to thoroughly blend the two components until a smooth and uniform consistency is achieved.
Component A is a highly thixotropic material which will become more fluid upon the addition of component B and agitation. If material will be left in the container for extended periods of time, occasional agitation may be needed to prevent settling. While typically not needed, if environmental conditions necessitate the need to add thinner, TESLAN® 1101 may be thinned (after mixing A & B components) up to 10% with TESLAN® 0901 Epoxy thinner ONLY.

For brush or roller application, stir occasionally to prevent settling.

Do not use material beyond its useful pot life limits.

Do not mix freshly prepared material with previous catalyzed material, as the new material will assume the properties of the previously mixed material.

If needed, thin material up to 10% by volume using only TESLAN® 0901 Type II Low VOC Epoxy Reducer.

Product Application & Equipment Recommendations

Airless Spray

Pressure:	3000-5000 psi (207-345 bar)
Hose:	1/4 - 1/2 inches (6.4 - 13 mm)
Tip:	0.017-0.021 inches (430-535 microns)
Filter:	Not Required
Reduction:	As needed up to 10% by volume

Conventional Air-Spray

Air Pressure:	40-50 psi (2.8-3.4 bar)
Material Pressure:	30-40 psi (2.1-2.8 bar)
Hose:	Minimum 3/8 inches (9.5 mm)
Tip Orifice:	0.070 inches (1.8 mm)
Air Cap:	Pressure Feed High Atomization Combination
Filter:	Not Required
Reduction:	As needed up to 10% by volume

Brush and Roller For areas where spray application is not feasible use of a natural bristle brush or a woven nap roller may be used. Contact Tesla NanoCoatings Sales Service for proper roller cover nap recommendations to optimize your specific project's finished appearance.

The above suggested parameters are for guidance only and settings may vary depending upon ambient conditions, actual equipment used, and project site specifics. Contact Tesla NanoCoatings Sales Service regarding the use or suitability of other proposed equipment.

Cleanup

Immediately clean and flush equipment with TESLAN® 0901 Epoxy Reducer or Tert Butyl Acetate. For use of other thinners not listed, contact Tesla NanoCoatings Sales Service.

Safety/Storage/Disposal

Safety

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.
To the best of our knowledge, the information contained herein is accurate on the date of publication and is subject to change without prior notice. The user is directed to review the most current SDS information found on the company website. However, neither the Tesla NanoCoatings Company, or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

Safety/Storage/Disposal (cont.)

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

Disposal
Dispose of unused material following all laws and regulations.

Contact Information

For technical assistance:
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Disclaimer and Warranty

Tesla NanoCoatings' products are manufactured to the highest quality standards and practices; we offer these products with the express understanding that the user assumes all risk and liability in connection therewith. As the use of the product is beyond our control, Tesla NanoCoatings Inc. makes no warranties regarding the products and all other warranties, express or implied, including warranties of merchantability or fitness for specific, intended, or particular use or purpose, are explicitly disclaimed.

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