Revision Date 11-2-26

TESLAN® 1103

Product Description

ZN-CNT EPOXY PRIMER

TESLAN® 1103 ZN-CNT EPOXY PRIMER is the next generation two-component, Zinc/CNT epoxy primer as defined by ISO 12944-5:2019. The 1103 was specifically designed and engineered for the protection of steel substrates in harsh offshore and highly corrosive atmospheric environments. This product incorporates carbon nanotubes (CNTs) together with sacrificial zinc for enhanced durability and extraordinary corrosion protection resulting in less than 3mm of scribe creep when tested in accordance with ISO 12944-9 CX applications. TESLAN® 1103 ZN-CNT EPOXY PRIMER can be directly top-coated utilizing Tesla's patented 2 x 1 WET EDGE process. Use only in conjunction with recommended TESLAN® Topcoat systems.

Recommended Uses

For use in harsh atmospheric and immersion environments including offshore CX, IM4, tidal & splash zones. Use directly on properly cleaned and prepared substrates. For optimal results, follow the application of the primer with TESLAN® Topcoat systems.
Project applications include:

- Offshore Platforms and Related Structures
- Wind Energy Turbines and Infrastructure
- Communication Structures
- Power & Utility Infrastructure
- Ships and Barges
- Locks, Dams, Pilings, and Buoys
- Marine Thrusters
- Pipelines
- Tank Interiors/Exteriors
- Bridges and Transportation Infrastructure

Product Characteristics (mixed)

Finish:	Low Semi-Gloss
Color:	Gray
Volume Solids:	65 ± 2% (ISO 3233-1)
Weight Solids:	88 ± 2% (unreduced)
Zn Content:	Meets or exceeds SSPC Paint 20 Type II, Level 2
Mix Ratio:	10:1 by Volume (Parts A: Parts B)
Pot Life:	3 hrs @ 100ºF/38ºC 4 hrs @ 77ºF/25ºC 5 hrs @ 50ºF/10ºC
VOC:	2.78 lbs/gal (333 g/l) (unreduced) 2.85 lbs/gal (343 g/l) @ 5% reduction*
Viscosity @77ºF(25ºC):	107 Krebs Units (unreduced)
Sweat-in-Time:	Not Required

***Use only TESLAN® 0901 Reducer**

Application Guidelines

This product is designed for application directly to properly cleaned substrates by hand tool, water jet or abrasive blast 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 and recommended dry film thicknesses for various uses and corrosivity categories, contact your Tesla NanoCoatings representative.

Recommended Film Thickness (unreduced):

	Min.	Max.
Wet mils (microns) per coat	10 (254)	16 (406)
Dry mils (microns) per coat	6 (152)	10 (254)

Theoretical Coverage (@ 1.0 mils / 25 microns dft): 1043 ft^2/gal (26 m^2/l)

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

	@50ºF(10ºC)	@77ºF(25ºC)	@100ºF(38ºC)
To Touch:	1 hrs	1 hrs	1 hrs
To Handle:	24 hrs	4 hrs	2 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:	1 hrs	0.5 hrs	0.5 hrs
maximum:	3 months	3 months	3 months
To cure:	10 days	7 days	7 days

Technical Service/R&D
technicalsupport@teslanano.com

Tesla NanoCoatings, Inc.
50 North Ave NW
Massillon, OH 44647 USA
www.teslanano.com

Sales Service
sales@teslanano.com

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. Remove any residues from abrading process ensuring a clean, dry and contaminate free surface.

Temperature (Air, Surface, Material) / Humidity Requirements

Minimum: 40ºF(5ºC), Maximum: 140ºF(60ºC), 90% RH

This product requires the substrate temperature to be above the dew point during application and curing. Condensation due to substrate temperatures below the dew point can interfere with curing, cause flash rusting on prepared steel, and affect proper adhesion to the substrate.

Maximum Continuous Operating Temperatures

Dry Conditions: 248ºF(120ºC)

Surface Preparation

This product is designed for direct application to bare metal substrates. 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 SP11 Power Tool Cleaning to Bare Metal, achieving a minimum 2 mil (50 micron) profile.

Mixing Procedures & Thinning Recommendations

Empty entire contents of Part B into Part A and thoroughly mix with a power mixer until a uniform consistency is achieved.

Do not use material beyond its useful pot life limits.

If needed, reduce material up to 5% by volume using only TESLAN® 0901 Reducer.

Application & Equipment Recommendations

Airless Spray

Pressure:	4500-5000 psi (310-345 bar)
Hose Dia:	1/4 - 1/2 inches (6.4 - 13 mm)
Tip:	0.017-0.019 inches (430-483 microns)
Filter:	Not required
Reduction:	As needed up to 5% by volume

Conventional Air-Spray

Air Pressure:	30-50 psi (2.1-3.5 bar)
Material Pressure:	20-30 psi (1.4-2.1 bar)
Hose Dia:	Minimum 3/8 inches (9.5 mm)
Tip Orifice:	0.080 inches (2.0 mm)
Air Cap:	Pressure Feed High Atomization Combination
Filter:	Not Required
Reduction:	As needed up to 5% by volume

Brush and Roller For brush and roll applications a natural bristle brush or a medium nap phenolic core roller may be used. For brush or roller application, stir occasionally to prevent settling. Multiple coats may be required to obtain recommended dry film thickness.

The above suggested parameters are for guidance only and settings may vary depending upon ambient conditions, actual equipment used, and project site specifics.

Cleanup

Immediately clean and flush equipment with TESLAN® 0901 Epoxy Reducer or other suitable solvent.

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:

Email: technicalsupport@teslanano.com
Tel: +1-330-809-6691
Web: www.teslanano.com

For sales assistance:

Email: sales@teslanano.com
Tel: +1-330-809-6702
Web: www.teslanano.com

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.

Tesla NanoCoatings shall have no liability in contract or tort for any product liability concerning the products or for the omission of any warranty therefrom. Tesla NanoCoatings shall not be responsible for nor have liability for indirect, consequential, or incidental damages of any kind including, but not limited to, personal injury, property damage, loss of profits, loss of service, loss of business or service, business interruption or downtime, application or installation costs, liquidated damages, or other economic injury related to any defect in the products, use of the products, or breach by Tesla NanoCoatings, known or otherwise.