Nap-Gard®

7-2500 Series Fusion Bonded Epoxy

Revised: October 7, 2022

DESCRIPTION

Nap-Gard® 7-2500 Series is a family of thermosetting epoxy powders designed for corrosion protection of pipes for underground and subsea pipelines. The 7-2500 Series includes Nap-Gard® Product Numbers 7-2500, 7-2500V, 7-2500VFG, 7-2500VSG, 7-2501,7-2508FG, 7-2508, and 7-2508LG. In buried service, the coatings in the 7-2500 Series are capable of withstanding continuous operating temperatures between -73°C(-100°F) and 107°C (225°F). The 7-2500 Series has been certified to meet the requirements of CSA Z245.20-22, NACE SP-0394-13, NSF/ANSI/CAN 61* for Portable Water Service and AWWA standards C116* and C213*

* NSF 61 and AWWA C116, C213 certification only applied to Houston made material

TYPICAL POWDER PROPERTIES

Specific Gravity:		**Density:**	
Powder	1.44 ± .05	CSA Z245.20-22	1440 ± 50 g/L
Cured Film	1.35 ± .05		
		Theoretical	
Shelf Life*:	12 months	**Coverage:**	134 Ft^2/lb/mil
@ 25°C (77°F)			
@ 50% RH			

*Transportation: The material is stable during transportation at temperatures below 25°C (77°F) and 50% RH.

Product	7-2508FG 7-2500VFG	7-2508 7-2500VSG	7-2508LG 7-2500V	7-2501	7-2500
Typical Gel Time: CSA Z245.20-22 @205°C (401°F)	8 ± 2 seconds	16 ± 3 seconds	24 ± 5 seconds	10 ± 2 seconds	22 ± 4 seconds
Color:	Green	Green	Green	Red	Red

TYPICAL PROPERTIES OF APPLIED FILM†

TEST / REQUIREMENT	Test Method	Description	RESULT
Recommended Film Thickness		Average Minimum	350µm (14 mils) 300µm (12mils)
Impact Resistance 1/8" X 5" X 8" steel panels	ASTM G14 CSA Z245.20-22	@ 25°C (77°F) 160 in. lbs @-30°C (-22°F) > 1.5 J	Pass Pass
Bending	CSA Z245.20-22 API-RP-5L7	@-30° (-22°F) 3.0°/PD	Pass Pass
Elongation	Modified ASTM G10	@0°C (32°F) @-30°C (-22°F)	4.8% 3.2%
Hardness	ASTM D2583 ASTM D2240	Barcol Shore D	60 Average 90 Average

Sensitivity: Business Internal

Cathodic Disbondment	CSA Z245.20-22:	24 hours., 3.5 V_{dc}., 65°C	1.2 mm radius
		28 days, 1.5 V_{dc}., 23°C	2.3 mm radius
		28 days, 1.5 V_{dc}., 65°C	7.2 mm radius
		Strained C.D	Pass
Tensile Properties	ASTM D2370	Tensile Strength	>9000 psi
Hot Water Resistance	CSA Z245.20-22	75°C, 24 hours	Rating 1-2
		75°C, 28 days	Rating 1-2
Chemical Resistance Test*	90 Day Immersion per CSA Z245.20-98	HCl in H_2O**	No Blistering
		10% NaCl, H_2SO_4 in H_2O **	No Blistering
		10% NaCl in H_2O **	No Blistering
		Distilled Water	No Blistering
		5% NaOH in H_2O **	No Blistering
		$MgCO_3/CaCO_3$ in H_2O **	No Blistering

** Distilled Water

* For additional information refer to Nap-Gard® Products Catalog Chemical Resistance Chart.

† Performance depends on film thickness. Consult Nap-Gard® Specialist for specific recommendations.

TYPICAL ELECTRICAL PROPERTIES OF FILM

Dielectric Strength ASTM D149	1500 volts/mil @250µm	**Breakdown Voltage** ASTM D149	20K volts @ 450µm (18 mils)
Dielectric Constant ASTM D150	2.15 @ 1 MHz	**Volume Resistivity** ASTM D257	3.3 X 10^{15} ohm-cm.
Thermal Conductivity ASTM C177	0.19 ±0.02BTU/(hr·ft^2·ft·°F)		

CURE† SCHEDULE GUIDELINES

The cure profile and schedule for Nap-Gard® 7-2500 Series shown below, outlines the minimum time at temperature required to achieve the typical performance properties of the coating. Recommended powder application temperature range is 204°C (400°F) to 239°C (463°F) and post heating is not a normal requirement on many pipe sizes with 0.25 inch wall thickness or above. The minimum post application curing temperature (as measured on the coated pipe) and the time to quench may conform to the following cure schedule:

7-2508FG/7-2501/7-2500VFG		7-2508/7-2500VSG		7-2508LG/7-2500/7-2500V	
Application Temperature	**Min Time to Quench‡**	**Application Temperature**	**Min Time to Quench‡**	**Application Temperature**	**Min Time to Quench‡**
218°C (425°F)	75 seconds	218°C (425°F)	90 seconds	218°C (425°F)	120 seconds
232°C (450°F)	65 seconds	232°C (450°F)	70 seconds	232°C (450°F)	90 seconds
239°C (463°F)	60 seconds	239°C (463°F)	60 seconds	239°C (463°F)	70 seconds

† Cure is by residual heat in the pipe, therefore very light wall pipe may require additional post heat to complete cure.

‡ Recommended time to quench is based on the assumption that the listed temperature is maintained without any cool down rate. Time to quench will vary with application parameters and pipe sizes. **Therefore, the above information shall be used only as a guideline by the applicator to develop proper time to quench. Cure should be verified by DSC or other methods. For three layer, the optimum time for adhesive application is between 30-70% cure of the FBE. This has to be developed by the applicator based on the plant layout.**

Always consult product Material Safety Data Sheet (SDS) prior to handling.

WARRANTY POLICY: Axalta Powder Coating Systems USA, Inc. ("Seller") certifies that all coatings delivered to Customer in unopened factory filled containers meet all pertinent quality standards presented in Seller's current published literature. Since matters of surface preparation, application procedures, curing procedures and other local factors that affect coating performance are beyond Seller's control; Seller assumes no liability for coating failure other than to supply replacement material for coating material proven to be defective. Customer will determine suitability of this product for it use and thereby assumes all risks and liabilities in connection therewith. Seller will not be liable for any injuries, damages or other losses derived, directly or indirectly, from or as a consequence of Customer's use of the product. **SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, RELATING TO ITS PRODUCTS AND THEIR APPLICATION, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES.**