Technical Information Sheet

NAP-GARD®
FBE Powder Coatings

PRODUCT NUMBER: 7-2610
DESCRIPTION: Nap-Rock Dual Powder System

Introduction:

This superior thermoset system is designed to provide excellent damage resistance to pipelines in the toughest environments including river and road crossings and rocky, mountainous terrain.
Excellent abrasion and impact resistance combined with good flexibility makes this product unique in providing protection against possible damage to FBE during pipe transportation, and pipeline construction.
This Dual Powder System consists of a thermoset topcoat, Nap-Gard® 7-2610, designed to be applied directly to one of the Nap-Gard corrosion protection Fusion Bonded Epoxy Systems, 7-2500, 7-2501, 7-2508STD/LG, 7-2514STD/LG or 7-2805.

POWDER PROPERTIES

Color:	Gray	**Theoretical Coverage:**	122.5 Ft^2/lb/mil
Specific Gravity:	1.57 ± .05	**Typical Gel Time:** **@ 204°C (400°F) CSA Z245.20-06**	
Density:	1570 ± 50 g/L	Standard Gel Version:	10 ± 2 Seconds
CSA Z245.20-06		Long Gel Version:	26 ± 5 Seconds
Thermal Characteristics:	Tg_1 = 59 ± 6°C	**Shelf Life @ 25°C (77°F):**	*12 months
CSA Z245.20-06	Tg_2 = 104 ± 4°C Δ H = 50 ± 20 (J/g)		

*Transportation: If the recommended time or temperature is exceeded during transportation or storage, the product should be re-certified.

TYPICAL PROPERTIES OF APPLIED FILM

Recommended Film Thickness:
This is selected based on the size and wall thickness of the pipe. Heavier film thickness required for more demanding environments such as road crossings. Consult Nap-Gard® Specialist for specific recommendations.

Base Coat – Listed above	250µm (10 mils) Average	**Taber Abrasion:**	55 mg removal
[This can vary from 200µm (8 mils) to 500µm (20 mils)]		(C17 wheel, 1Kg, 5000 Cycles)	
Top Coat – 7-2610 STD or LG	375µm (15 mils) Average		
[This can vary from 300µm (12 mils) to 875µm (35 mils)]			
Impact Resistance: **@-30°C (-22°F)** **CSA Z245.20-06**	Pass 9.5J @ 38 mils	**Compressive Strength:** **ASTM D695-97**	›10,000 psi
Tg of Cured Film:		**Tensile Strength:**	Strength at break 6,470 psi, elongation 4.9%
By DSC-CSA Z245.20-06 (Tg_3):	106 ± 6°C	**ASTM D2370**	
By DMA:	118°C		

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Bending:		
@-30°C (-22°F)	2.0°/pipe dia. (@30 mils total)	Pass
CSA-Z245.20-06		
Note- Flexibility will be lower at higher film thickness.		
Cathodic Disbonding:		
CSA Z245.20-06		
28 days, 25°C, 1.5 V, 3% NaCl soln.	3 – 5 mm radial Disbondment	Pass
24 h. 65°C, 3.5 V, 3% NaCl soln.	2 – 3 mm radial Disbondment	Pass
Water/Soak Adhesion:		
CSA Z245.20-06		
75°C, 24 h	Rating of 1	Pass
75°C, 28 days	Rating of 1	Pass
Gouge Resistance (Partech Test):	50 kg weight, gouge depth 14 mils	Pass, no holidays
@ 1300µm (52 mils) total, 23°C	75 kg weight, gouge depth 34 mils	Pass, no holidays
R-33 Blank (smooth)		
Thermal Conductivity:	0.23 ± 0.02 BTU/hr./ft^2/ft./°F	
ASTM C177		
Shear Adhesion ASTM D1002-94:		
Average	5363 psi	

TYPICAL ELECTRICAL PROPERTIES

Dielectric Strength:	1000 volts/mil	**Breakdown voltage:**	›20000 volts@650 µm (26 mils) total
ASTM D149-97		ASTM D149	
Dielectric Constant:	4.04 at 1 MHz	**Volume Resistivity:**	1.26 X 10^{16} ohm-cm.
ASTM D150		ASTM D257	

GENERAL APPLICATION PARAMETERS

Cleanliness: Near White (NACE #2) or Swedish Standard Sa 2½.
Profile: Grit blast to angular profile 50 µm (2.0 mils) to 112 µm (4.5 mils)
Application: Preheat pipe to 232°C to 253°C (450°F to 488°F)

Apply Nap-Gard base coat followed by Nap-Gard 7-2610 using electrostatic spray or flocking application. Water quench after allowing sufficient time for proper cure. For line pipe, apply 7-2610 in-line before base coat has gelled. Base coat must be at or above 425ºF to apply 7-2610. The use of a separate reclaim system is recommended. Coating of girth welds and fitting – see separate application guideline recommendations.

GEL TIME & CURE SCHEDULE GUIDELINES

Follow the cure schedule of the base coat. However, a minimum 90 seconds at 425°F or higher is needed for proper cure.

[Note: Quench time will vary with application parameters and pipe sizes.]

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