



TECHNICAL DATA SHEET

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XL[®]-2103

SOLVENTLESS POLYESTER RESIN

PRODUCT DESCRIPTION

XL-2103 is one of a new class of high flash point, very low VOC, solventless polyester resins. It is especially formulated to provide a higher build and may be applied by dip and bake. Exceptionally stable, XL-2103 contains no conventional monomers or formaldehyde releasing compounds. This product is not recommended for VPI.

FEATURES & BENEFITS

- Contains no formaldehyde, styrene, vinyl toluene, t-butyl styrene, or diallyl phthalate (DAP)
- Very low evaporation during the process cycle
- Very low odor
- Very good wetting properties
- Relatively fast cure cycles
- High flash point
- High bond strength
- UL recognized

TYPICAL APPLICATIONS

- Rotors
- Stators
- Random wound coils
- Armatures
- Inverter duty motors
- D.C. traction coils
- Form wound coils
- Transformers

TYPICAL PROPERTIES

Physical

Color/Appearance	Clear/Amber
Weight per Gallon @ 77°F (25°C), ASTM D 1475, lbs/gal	8.8 – 9.2
Viscosity, Brookfield @ 77°F (25°C), ASTM D 2196, cps	1,300 – 1,900
Film Build, ASTM D 115, mils/side	1.5 – 2.0
Gel Time @ 257°F (125°C), ASTM D 3056, minutes	8 – 13
Flash Point, °F	>200
VOC Content, ASTM, D 6053, lbs/gal	0.20

Mechanical

Helical Coil Bond Strength, ASTM D 2519, lbs	@ 25°C @ 150°C	26 8
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Electrical

Dielectric Strength, ASTM D 115, volts/mil	Dry Wet	3,000 2,750
Dielectric Strength, ASTM D 115, KV/mm	Dry	160
Surface Resistivity, ASTM D 257, ohms		1.2×10^{14}
Volume Resistivity, ASTM D 257 ohm-cm		1.4×10^{14}

DIELECTRIC CONSTANT				
Temp. °C	25	50	100	150
100 Hz	4.64	4.99	5.17	6.18
1 kHz	4.13	4.79	5.07	5.27
10 kHz	4.15	4.87	4.89	5.05

DISSIPATION FACTOR				
Temp. °C	25	50	100	150
100 Hz	0.026	0.03	0.115	0.100
1 kHz	0.008	0.028	0.054	0.098
10 kHz	0.012	0.016	0.057	0.034

Thermal Class (UL-1446)

Twisted Pair	Magnet Wire	Temp
	MW16	220
	MW35	180
	MW28	130

Refrigerant Extraction (NEMA RE-2)

R-134a	0.7%
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APPLICATION GUIDELINES

Following is a suggested dip and bake cycle.

1. Preheat parts to 250-325°F to remove moisture.

Note: If thermoset tapes are used, preset tapes according to tape manufacturer's recommendations.

2. Cool to 130°-140°F

3. Dip until bubbling stops (15-30 minutes).

4. Drain between 5-20 minutes

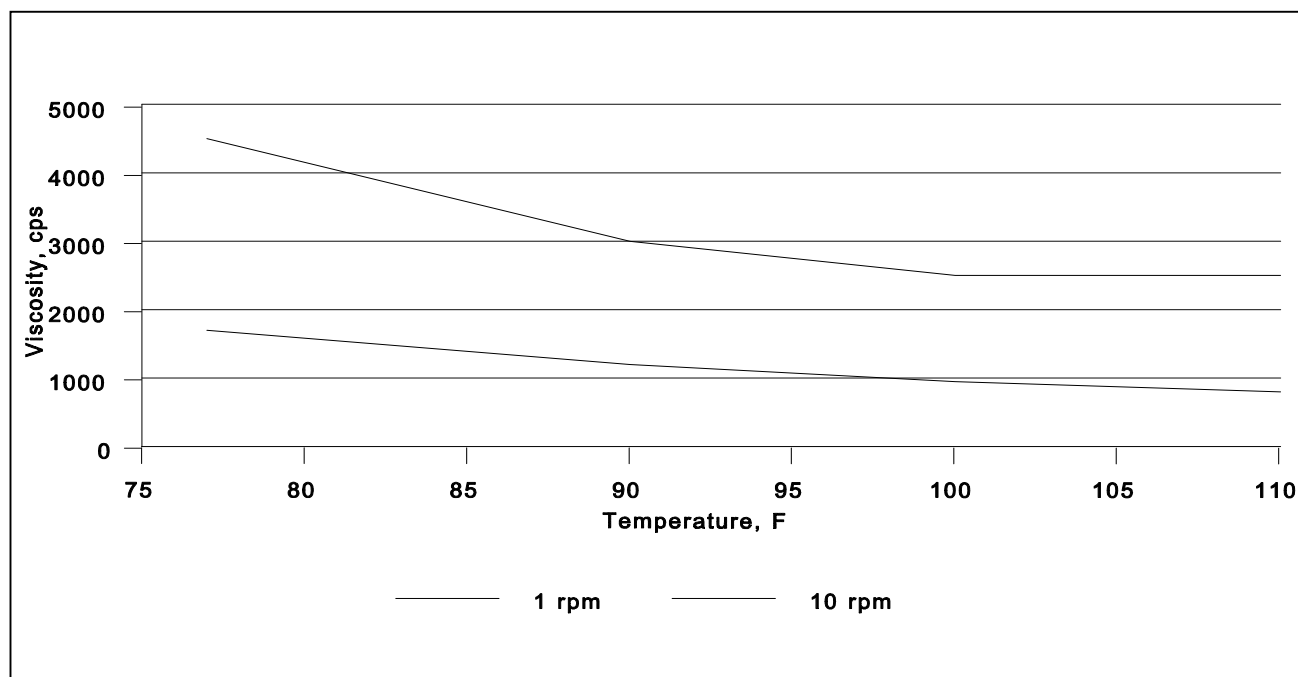
5. Bake in a preheated oven at recommended time and temperature

Suggested Bake Cycles*

1-2 hours @ 325°F

2-3 hours @ 300°F

* Times are taken after unit reaches baking temperature



Temp, °F	77	90	100	110
cps @ 1 rpm	4500	3000	2500	2500
cps @ 10 rpm	1700	1200	950	800

EQUIPMENT RECOMMENDATIONS AND PRECAUTIONS

XL-2103 may react with copper, copper alloys and natural rubber. Therefore, do not use these materials in the tank or recirculating system. Tanks should be constructed of black iron or stainless steel and flexible fittings should be made of synthetic rubber or plastic.

Bare copper conductor: When used with bare copper, a green discoloration may form. This is more likely to occur when the insulation system has a high moisture content. Windings that include bare copper require longer bake time and/or higher oven temperature. Please contact the DOLPH Company for information on adjusting resin application and cure cycles.

STORAGE AND SHELF LIFE

Shelf life is 12 months from date of shipment from our plant, when stored in closed containers at 70°F/21°C or below.

1. Store in cool, dry place at 70°F/21°C or below.
2. Protect from direct sunlight and sources of heat
3. Keep away from heat, sparks and open flame.

SAFETY AND ENVIRONMENT

Avoid contact with skin and eyes. See Material Safety Data Sheet

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