ELANTAS
Electrical Insulation

Technical Data Sheet

Secondary Insulation

Epoxylite® E 478 Thixo

Single-Component Epoxy VPI Resin

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Epoxylite® E 478 Thixo

Product Description

Epoxylite® E 478 Thixo is a single-component, heat-cured, 100% solids epoxy impregnating resin.

Areas of Application

Impregnation of medium voltage motors and generators (< 7 kV) using uncatalyzed tapes as well as random wound motors

Features and Benefits

- The industry standard for the medium voltage power generation industry and Navy and commercial rewinding operations
- Chemical resistant for operation in corrosive environments
- Refrigerant-resistant for hermetic service
- Thixotropic for higher resin retention and film build
- No separate catalyst required
- UL Recognized Insulation Systems up to Class 180

Application Methods

- Vacuum-Pressure Impregnation
- Vacuum Impregnation

Transportation / Storage

Store below 25°C / 77°F in a dry controlled environment out of direct sunlight. This material should be suitable for use stored under these conditions in the original sealed containers for six (6) months from the date of shipment.

Failure to store the product as recommended above may lead to deterioration in product performance.

Usable life may be extended by refrigerated storage at 5°C / 41°F.

For best results, VPI storage tanks should have a replenishment rate of 10% or more per month and employ cooling systems to maintain the resin at 20°C / 68°F or below.

Mix thoroughly before use

Health / Safety

Refer to the Material Safety Data Sheet.

Typical Properties of Material as Supplied

Property	Conditions	Value	Units
Viscosity	25°C / 77°F - 20 rpm	1,500 - 3,000	cP
Weight per Gallon	25°C / 77°F	9.4 – 9.8	pounds
Sunshine Gel Time	150°C / 302°F	12 - 18	minutes
Flash Point	ASTM D93	> 94 > 201	°C °F

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Application / Curing Schedule

Preheat units, as necessary, to remove moisture and set tapes. Allow units to cool to 38 – 49°C / 110 – 120°F before immersion to promote good penetration while not overheating the resin.

Cure VPI-treated units for 6 hours at 149°C / 300°F - or -
4 hours at 163°C / 325°F

Cure schedule is based on time after unit reaches specified temperature

Typical Mechanical Properties

Property	Conditions	Value	Units
Film Build		2 - 4 50 - 100	mils microns
Hardness	Shore D – 25°C / 77°F	85	
Helical Coil Bond Strength ASTM D2519 over MW 35	25°C / 77°F 150°C / 302°F	66 8	pounds pounds
Glass Transition Temp.	DSC	92	°C
Coefficient of Thermal Expansion	Below Tg Above Tg	72 207	ppm / °C ppm / °C
Freon Extractable Material	NEMA RE-2	< 1.0	%

Typical Electrical Properties

Property	Conditions	Value	Units
Dielectric Strength	ASTM D149 – 2.5 mils	3850	volts/mil
Dielectric Strength	ASTM D149 – 2.5 mils After 24 hours in water	2900	volts/mil
Volume Resistivity	ASTM D257 – 25°C / 77°F	> 1 x 10^{16}	ohm-cm
Dissipation Factor ASTM D150	1 kHz – 25°C / 77°F 1 kHz – 100°C / 212°F 1 kHz – 150°C / 302°F	0.004 0.01 0.16	
Dielectric Constant ASTM D150	1 kHz – 25°C / 77°F 1 kHz – 100°C / 212°F 1 kHz – 150°C / 302°F	3.3 3.5 4.7	

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Underwriters Laboratories Recognition (ELANTAS File E75225)

Wire Construction	Helical Coil	Twisted Pair
NEMA MW16	Class 200	Class 220
NEMA MW35	-	Class 180

UL Recognized Insulation Systems (ELANTAS File E87039)

Thermal Class	System
Class 155	MV-3, Dash 2 F-5
Class 180	Dash 2 H-6, Dash 2 H-7

The above properties are typical values and are not intended for specification use.