Technical Data Sheet

Resin

DOLPHON XL-2102

- **One component impregnation resin**
- **UL Class H approved (file OBOR2.E317427 and OBJS2.E317429)**
- **Excellent wetting properties**
- **Good bond strength**
- **Low weight loss on cure**
- **Very low odour**
- **Relatively fast curing cycles**
- **Low viscosity**
- **EN 45545-2 approved for railway applications: HL3 for R22, and HL3 for R23**

Description
DOLPHON XL-2102 is a one-package, 100% solid polyester resin, specially developed for dipping impregnation, both in open tanks and vacuum chambers

Applications
Impregnation of stators, rotors, traction coils, transformers, inductances.

Processing guidelines
DOLPHON XL-2102 can be easily applied by following these suggestions:

1. Preheat the units at 50-60°C (maximum);
2. Dip into the resin for 30-60 minutes;
3. Drain for 1 h. minimum;
4. Bake minimum 3 to 4 hours @ 130°C or 1 hour @ 150°C. Best performances when baking 2 ½ hours @ 150°C, or 2 h. @ 160°C or 75' @ 170°C (time must be taken after units reach the baking temperature). For parts having to endure high mechanical or chemical stresses during operation, longer curing times are recommended.

For the VPI application the cycle must be set for each type of machines, feel free to contact us.

DOLPHON XL-2102 is sensitive to UV rays. When not in use, the impregnation tanks must be protected from the light by means of a (non-transparent) lid. Exposition to sunlight may cause a partial gelification of the tank surface.
DOLPHON XL-2102 reacts with bare copper, copper alloys and natural rubbers; it is therefore not advisable using these materials in the impregnating plant construction.

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Storage conditions – Shelf life
The shelf life is 12 months, when stored in original closed containers at maximum 30°C, protected from direct sunlight and heat sources.

Health and safety
Our products are intended for professional/industrial use only. For any further information, please refer to safety data sheet.

Physical Properties	Test norm	Unit	Value
Density @ 25°C			1.09 – 1.15
Viscosity Ford Cup 4 @ 25°C		seconds	110-170
Viscosity ISO Cup 6 @ 25°C		seconds	80 - 120
Gel time @ 100°C		minutes	30-45
Weight loss (10g liquid, cured 1h @ 150°C)		%	<3.5

Mechanical Properties	Test norm	Unit	Value
Bond strength (MW35, double impregnation, curing 1h@150°C)	IEC 61033B Helical Coil		
25°C		N	>180
80°C		N	>90
155°C		N	>30

Electrical Properties	Test norm	Unit	Value
Dielectric Strength @ 25°C	ASTM D-115	KV/mm	>128
Volume resistivity @ 25°C	IEC 60464-2	Ω.cm	$>10^{15}$
Volume resistivity @ 25°C after 7 days immersion in water	IEC 60464-2	Ω.cm	$>10^{12}$
Surface resistivity	IEC 60464-2	Ω	$>10^{15}$
Dielectric Constant @ 25°C 50HZ	ASTM D-150		3,3
Comparative Tracking Index CTI	IEC 60112		600M

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Thermal Properties	Test norm	Unit	Value
Thermal Conductivity		W/m.K	0,25-0.30
Thermal class	UL 1446	Twisted Pairs	Helical Coils
	MW 16-C	220°C	
	MW 28-C	130°C	
	MW 35-C	180°C	200°C

Chemical Properties	Test norm	Unit	Value
Water absorption 90'@100°C	ASTM D-570	%	<1.5
Water absorption 24h @ 25°C	ASTM D-570	%	<1
Resistance to vapor of solvents	IEC 60464-2		
Xylene			Resistant
Methanol			Resistant
Hexane			Resistant
Resistance to chemicals	ISO 175		
Hydrochloric acid 10%		%	<2.5
Sulfuric acid 30%		%	<1.5
Green gasoline		%	<1.5
Oil transformers		%	<0.5
Detergent solution		%	<1.5

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