

PI3401

Electrical Insulation Impregnating Resin

PI3401 is a unique impregnating resin made from a modified unsaturated polyester-imide, free of VOCs. It has low emissions and a viscosity ideal for dip impregnation, trickle, and roll-dip processes. The resin offers excellent stability and quick surface drying, even in thin layers. Specifically designed for impregnating both rotating and stationary windings in various applications, including traction, PI3401 delivers a durable, crack-free finish.

FEATURE AND BENEFITS

- Single component environmental- friendly impregnating resin
- Thermal class:C(200°C)
- Excellent storage stability
- Fast curing and high mechanical strength
- Good electrical properties, heat resistance, mold resistance
- Excellent resistance to ATF oil and aging

APPLICATION METHOD

- Vacuum-Pressure impregnation
- Trickle
- Curing condition : 140-150°C, at 120 minutes

TYPICAL UNCURED PROPERTIES

Properties	Methods	Value	Units
Appearance	Tube method	Yellow brown liquid	/
Viscosity	25°C (ISO 3219)	1200±300	mPa.s
Gell time	120°C	4-8	min
Volatile in curing	10g, 150°C.2h	≤2	%

DIRECTION OF USE

Vacuum pressure impregnation

- Preheating: Preheat unit in oven at 120-130°C for 1-2hours.
- Vacuum Impregnating: After it is cooled (generally below 50°C), put it in a vacuum pressure impregnation tank, vacuum tank to below 20mmHg (<2600Pa) and maintain for about 10 minutes. Then, fill the resin until the resin surface is at least 50mm above the highest point of the work-piece. Maintain the vacuum for 5-10 minutes, and slowly release. The vacuum level can be adjusted based on the ease of impregnation and the requirement of overall no air-gap, with a minimum vacuum level about 100Pa.

- Pressure Impregnating: Pressurize with nitrogen gas, carbon dioxide, or dry air to 2-4kg/cm² and maintain the pressure for 10 minutes. Then, press back the impregnating resin into the resin storage tank. (This step is only applicable for high vacuum impregnation.)
- Drip-dry: Dripping under atmospheric pressure for at least 30 minutes, or under vacuum for at least 15 minutes, with a vacuum level of -0.06 to -0.08Mpa.
- Curing: Transfer the impregnated unit to a preheated oven, and raise to 145-155°C, then hold it for
- 3-6 hours until thermal insulation resistance reaches the specified value or the surface of the impregnating resin is dry.

Trick process

- Pre-heating: the wire winding temperature of unit should be controlled at 90°C - 105°C before the process.
- Trickling: the speed of unit is controlled at 15-20rpm and the whole trickle time shall be controlled at 6-10min.The time can be flexibly adjusted according to the unit size
- Gel time: 140°C-150°C, 30min.
- Curing: 140°C-150°C, 60-120min.

CAUTION

- Due to the variations in operational facilities and process equipment among different companies, the use of this product is not limited to the mentioned processes. For obtaining the optimal process, please contact our technical department.
- To maintain the long-term stability of the resin in the storage tank, it is recommended to add at least 20% of fresh resin every month. If necessary, the viscosity and reactivity of the resin in the tank should be periodically tested.
- The resin should be protected from pollution and long-term exposure to high temperature

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TYPICAL CURED PROPERTIES

Properties	Method	Value	Units
Bonding strength	25°C (IEC 61033)	≥400	N
Bending strength	25°C (ISO 14125)	70-95	mPa.s
Volume Resistivity	25°C (IEC 62631-3-1)	≥1x10 ¹³	Ω.m
	155±2°C (IEC 62631-3-1)	≥1x10 ⁹	
Dielectric strength	25°C (IEC 602431)	≥20	Kv/mm
Dielectric loss factor	25°C (IEC 62631-2-1)	≤1	%
Dielectric constant	25°C (IEC 62631-2-1)	2-5	/
AFT Resistant	/	Qualified	

PRODUCT PACKAGING

The product is available in 20g and 200kg sealed iron drums. Packaging is also available according to customer requirements.

TRANSPORTATION AND STORAGE

Store sealed in original packaging in a dry, cool, ventilated room or under a shelter below 25°C. The storage period for this product is 6 months from the date of delivery.

HEATH AND SAFETY

Refer to the Safety Data Sheet

The data contained in this bulletin is provided only as a guide for evaluation/consideration. These material characteristics are typical properties that are based on a limited number of samples tested in the laboratory. We cannot assume responsibility for results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any product or method. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide.