

ELECTRICAL INSULATING VARNISHES & RESINS



- ▶ Leading market position through continuous innovation
- ▶ Global footprint allowing fast response to customer needs
- ▶ Best team in the industry with global product, application, service & market knowledge
- ▶ Global portfolio offering world class products
- ▶ Efficient, safe and modern plants leading to supply reliability

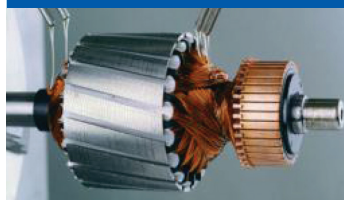
We offer enamels, varnishes, resins systems through our different business lines

Wire Enamels



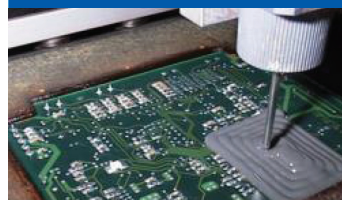
- Wire enamels for the primary insulation of magnet wire
- Magnet wire is applied in electric motors, generators and transformers

Electricals



- Consolidation of magnet wire in electrical machine through insulating varnishes & resins.
- Applied through various application techniques (dip, roll-dip, hot-dip, trickle, VPI etc.)

Electronics



- Resin systems for the overall protection of electronic circuits and electric devices
- Resin systems with specific functionalities in electronic components/assemblies

Engineering Materials



- Total solution from Functional flooring to waterproofing and coating
- Polyamide hardeners for varied industrial uses

Product Selection Guide - Varnishes

Product Designation	Chemical base	Thinner	Viscosity by Flow cup (s)	Curing Cycle (°C/h)	Thermal Class	Distinctive Properties	Suggested Applications
IMPREGNATING VARNISHES							
Elmo 65 E/R	Alkyd phenolic	205	40 – 60	130/8	130 (B)	Excellent resistance to centrifugal forces	Impregnation of high speed motor armatures, drives in chemical industry, hand tools etc.
Elmo B 92 FC	Alkyd	234	40 – 60	120/2	130 (B)	Flexible cured film, Short curing schedule	Impregnation of fan stators
Elmo B 95	Alkyd phenolic	205	40 – 60	130/6	130 (B)	Short curing schedule	Impregnation of motor stators, transformers, etc.
Elmoglas V 155	Polyurethane	218	45 – 65	140/14	130 (B)	Resistant to refrigerant R11 & R22	Impregnation of hermetic motor stators, Binder varnish for glass fiber tapes & sleeves
Elmotherm F 50	Isophthalic alkyd	205	50 – 70	160/6	155 (F)	Excellent dielectric properties under moist condition, good bond and adhesive strength	Impregnation of motor stators, rotors, generators, Aux. Traction motors etc.
ISONEL 31 J	Modified Polyester	31 J	115 -145 ⁽¹⁾	150/4	155 (F)	Mild solvents, excellent resistance to chemicals, UL recognized (E253938)	Impregnation of motor stators, rotors, generators etc.
Elmotherm F 57	Isophthalic alkyd	205	40 – 60	150/4	155 (F)	Excellent resistance to chemicals, good dielectric properties	Impregnation of motor stators, rotors, generators etc.
Elmotherm FR 63	Epoxyester melamine	205	30 – 50	150/8	180 (H)	Resistance to refrigerants and hydrolytic stability, UL recognized (E253938)	Impregnation of hermetic motor stator
Elmotherm H 71 A	Polyesterimide	218	65 – 75 ⁽³⁾	150/4	180 (H)	Good bond strength at class Temperature, PTB certified, excellent resistance to chemicals and moisture	Impregnation of traction motors, dry type transformers, generators, centrifugal motors, cooling machine drives for ships, mills, motors etc.
ISONEL 51 J	Modified Polyester	51J	60 – 80 ⁽¹⁾	150/4	180 (H)	Mild solvents, tough and elastic cured film, UL approved (E253938)	Impregnation of traction motors, dry type transformers, generators.
ISOPOXY 800	Epoxy	Aquasolv	300-600 mPa.s ⁽²⁾	160/2	180 (H)	Resistant to R134A, good bond strength and hard cured film. Water soluble environmental friendly, UL approved (E253938)	Impregnation of windings of hermetic machines
ANTI TRACKING FINISHING VARNISHES ROOM TEMPERATURE CURED							
Varnish F93 (Red)	Polyesterimide	217	15 – 16	RT/24	180 (H)	2K, RT cured red coloured High heat resistance, anti-tracking	Finishing varnish for turbogenerators, traction motors, etc.
B 6-665	Epoxy	221	90 -200	RT/24	155 (F)	Single component class 155 red pigmented anti-tracking finishing varnish	Finishing Coat for electrical machines
Epoxilite 213 PF	Epoxy	221	280	RT/24	155 (F)	Black colour, two component Fast curing	Finishing coat for alternators
Elmo Luft 1A-..	Phenolic	234	25 – 35	RT/24	130 (B)	Fast air drying, anti-tracking, Available in clear & golden UL approved	Coating on PCB, SRBP components, impregnation of small coils & stators
Epoxy Gel coat (Red)	Epoxy	221	45k – 85k ⁽²⁾	RT/24	130 (B)	3 component, air drying antitracking, red coloured	Overhauling of electrical machines, corrosion resistance coating, etc
Becktol (Red)	Alkyd	234	50 – 160	RT/24	120 (E)	Air drying, anti-tracking, red pigmented	Finishing coat on overhangs of stators, rotors etc.
Becktol (Grey)	Alkyd	234	50 – 170	RT/24	120 (E)	Air drying, anti-tracking, grey pigmented	Finishing coat on overhangs of stators, rotors etc.
CORE PLATE VARNISHES							
ISONEL CPV	Alkyd phenolic	CPV	115-145	350–450/ 1-2 min.	155 (F)	Water soluble, good adhesion, punching quality & insulation resistance	Coating laminations of motors, transformers, hydrogenerators etc.
Elmotherm WS 97	Phenolic melamine	Distilled Water	70 – 90	350 – 45/ 1-2 min.	155 (F)		
BINDER VARNISHES							
Elmo 799	Isophthalic alkyd	231	60 – 80	120/15 min	120 (E)	High flexibility retention after ageing	Binder varnish for polyester film-glass-mica tapes
Elmoglas V 172	Polyurethane	218	20 – 30	155/30 min – coat 1 155/60 min - coat 2	155 (F)	Hydrolytic stability, quick drying, flexible	Impregnation of glass fibre sleeveings, tapes also binder varnish for glass-fibre covered wires
Elmoglas V 132-48 A	Epoxy	218	30 – 40	300 – 400 / <3 min	155(F)	Good bonding & flexibility	Binder varnish for glass-fibre covered wires
Elmoglas H 69 A	Polyesterimide	218	50 – 65	300 – 400/ <3 min	180 (H)	High flexibility retention after ageing	Binder varnish for polyester film-glass-mica tapes, GFCC
SPECIAL PURPOSE VARNISHES & PRODUCTS							
Insulation Adhesive P80	Polyvinyl alcohol	Distilled Water	10,000 – 15,000 ⁽²⁾	RT/4 - 8	105 (A)	Good bonding, resistant to transformer oil	Gluing of cotton tapes, hard boards etc. during construction of transformers

Notes: All viscosities are by DIN 53211/ Cup 4 at 23°C (1) Viscosity at 25°C by IS 3944-1966/Cup No. 4 (2) Viscosity by Brookfield viscometer @ 23°C acc to ISO 2555 (3) Viscosity by ISO2431 6mm Cup 25°C

Product selection Guide - Impregnating Resins

Product Designation	Hardener	Gel Time (°C/min)	Viscosity by Brookfield (mPa.s)	Curing cycle (°C/h)	Thermal Class	Distinctive Properties	Suggested Applications
UNSATURATED POLYESTER / IMIDE MONOSTYRENE DILUTED SOLVENTLESS IMPREGNATING RESINS (DOBECKAN)							
FT1052	P	100 / 40 – 55	480 - 520	140 / 2	180 (H)	Good tank stability, UL approved (E253938) DIP & VPI	Impregnation of general purpose motors, rewinding of medium voltage machines
FT1052 EK		120 / 15 – 25	120-150 ⁽¹⁾	150 / 1		Fast cure, high reactivity resin, DIP & VPI 1K UL approved (E253938)	Impregnation of general purpose motors, rewinding of medium voltage machines
F 2504/E	P	100/ 30 - 40	800 – 1000	140 / 2	155 (F)	High gloss, white pigmented, good tank stability, DIP & VPI	Impregnation of open type TW & HID ballasts
F 2510/E	K2	100 / 20 - 30	50 – 80 ⁽¹⁾	150 / 1		High reactive, white pigmented, DIP & VPI	
UNSATURATED POLYESTER / IMIDE VINYL TOLUENE DILUTED SOLVENTLESS IMPREGNATING RESINS (DOBECKAN)							
FT 2015/90L EK	-	120 / 16 - 24	55 – 65 ⁽³⁾	150 / 1	200 (C)	1K, high tank stability, Thixotropic, UL approved (E253938) VPI	Impregnation of Wind mill Generators, All high thermal capability machines
FT 2005/500 EK	-	120 / 20 - 40	480 - 520	160 / 4		1K, balanced properties, UL approved (E253938), VPI	Impregnation of traction machines
50VT-28 F	DICUP	126 / 7-14	250 – 700	150 / 2	180 (H)	Filled, high heat dissipation, Off- white colour, good mechanical strength, UL approved (E253938)	Impregnation of open type TW & HID ballasts
50VT	-	125 / 5-15	50 - 75 ⁽¹⁾	150/ 2		1K, Glossy finish cured film, good mechanical & dielectric properties UL approved (E253938)	Impregnation of static devices such as transformers
EPOXY BASED SOLVENTLESS IMPREGNATING RESINS (DOBECKOT)							
520F	WH 7015	120 / 12	720	150/ 1	155 (F)	2K, very low viscosity, excellent flexibility, Anhydride cured, VPI	Trickle impregnation of high speed armatures like starter motors, alternators. VPI for electrical machines
EIP 5070	-	165 / 6 – 10	3000 – 5000	165/4	180 (H)	Thixotropic, high viscosity, 1K Epoxy UL Approved (E253938)	Impregnation of severe duty motors
EPOXYLITE 987	-	165 / 5 – 15	Paste	165/ 6		1K, Red Thixotropic, UL approved (E253938) wet winding	Impregnation of salient pole motor armatures
UNSATURATED POLYESTER / IMIDE MONOSTYRENE DILUTED SOLVENTLESS TRICKLE RESINS (DOBECKAN)							
FN 1002	K2	80 / 38 - 42	250 – 300	130 / 0.5	155 (F)	Fast cure, high reactivity resin,	Impregnation of solenoid valves, house hold electrical machines etc.
FT 1040/ 120 E		80 / 35 - 40	35-45 ⁽¹⁾		180 (H)	Low viscosity, tough & Elastic, UL Approved (E253938)	Impregnation of alternator stators, Electrical motor armatures etc
FT 1040/ 180 E		80 / 35 – 50	160 – 200				
FT 1080/ 45 E		100 / 5-10	40-50 ⁽¹⁾		High Reactivity, high mechanical strength, UL Approved (E253938)	Impregnation of Auto components	
FT 1080 / 85 E		100 / 5 - 10	75 – 100				
FT 1080 / 500 E		80 / 35 - 40	480 - 520				
FT 2001/ 500 E		80 / 20 - 30	120-135 ⁽¹⁾				
075 – 2715		100 / 3-10	5000 -10000		High viscosity, filled, high stability	Gel coating of small armatures	
EPOXY BASED SOLVENTLESS TRICKLE RESINS (DOBECKOT)							
605	762	80 / 5	180	130 / 0.5	130 (B)	High pot life, heat cured	Impregnation of hand tools, household machines, universal motors, etc
	758	80 / 2	200			Fast cure, high chemical resistance	

Notes : 1. All Dobeckan resins has resin : Hardener mixing ratio of 100 : 1 except Dobeckan 075-2715 where the mixing ratio is 100 : 3 parts by weight. For Dobeckot resins refer respective TDS.

2. Shelf life at < 25°C for all Dobeckan resins is 6 months except Dobeckan FT 2015/.. EK & Dobeckan FT 1052 EK has 4 months.

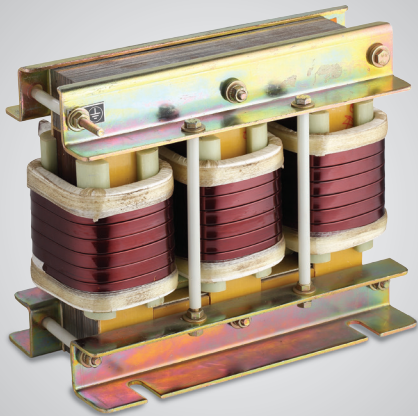
(1) Viscosity at 25°C by IS 3944-1966/Cup No. 4

(2) Viscosity at 23°C by DIN 53211/ Cuo 4

(3) Viscosity at 25°C by ISO 2431/ Cup 6

New Products

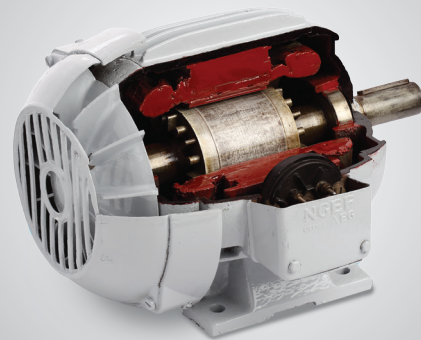
Fast curing varnishes - ISONEL 31JFC / SFC, 51JFC / SFC, B92FC



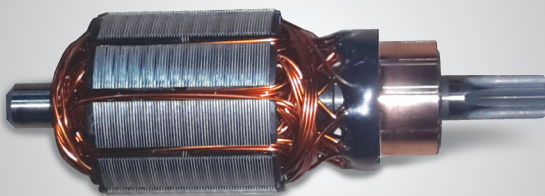
- Specially designed faster curing varnishes.
- Low odour making suitable for use in residential area
- Highly transparent cured film
- Excellent flexibility
- Thermal class 130(B) & 155(F)
- Suitable for DIP/VPI impregnation
- Areas of application: transformers, motors & fans

Single component Polyester imide resin - Dobeckan FT1052EK

- Unsaturated polyester imide based highly reactive resin
- Single component relieve weighting & mixing of multiple components
- Excellent tank stability
- UL approval for Thermal class 180 (E253928)
- Ready to use viscosity
- Suitable for DIP / VPI application
- Areas of application: motors, transformers, alternators



High viscosity Thixotropic Gel Coat - ELAN-Tron® MC403GC+ELAN-Tron® WH7016



- 2K epoxy based heat curing system
- Black coloured system
- Operator friendly mixing ratio
- Fast cure in conveyORIZED trickle impregnation
- RoHS compliant
- Thermal class 155(F)
- Areas of application : Automobile starter motors, power tools



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