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The miracles of science™

DuPont™ Voltron® E 3597

TECHNICAL DATA SHEET

Chemical base: THEIC- modified Polyesterimide

Voltron® 3597 coated magnet wires have outstanding resistance to partial discharges as they occur e.g. in inverter fed motors. They combine this special property with high thermal rating, good chemical resistance and flexibility.

Enamelling technology

Voltron® 3597 can be applied on round wire for diameters ranging from approx. 0.2 mm up to approx. 6.00 mm, single and heavy build, by convection or recirculation air ovens, both horizontal or vertical types. The enamel is applied with dies.

There are no special requirements for application when compared to conventional enamels.

Table 1: Standard Parameters

Voltron® 3597/ 40	
solid content (1 h, 180 °C, 1 g)	40,0 % ± 1,5 %
viscosity at 25 °C, DIN 53 015	2600 mPa·s ± 400 mPa·s
diluent	E 5068

Table 2: Enamelling conditions

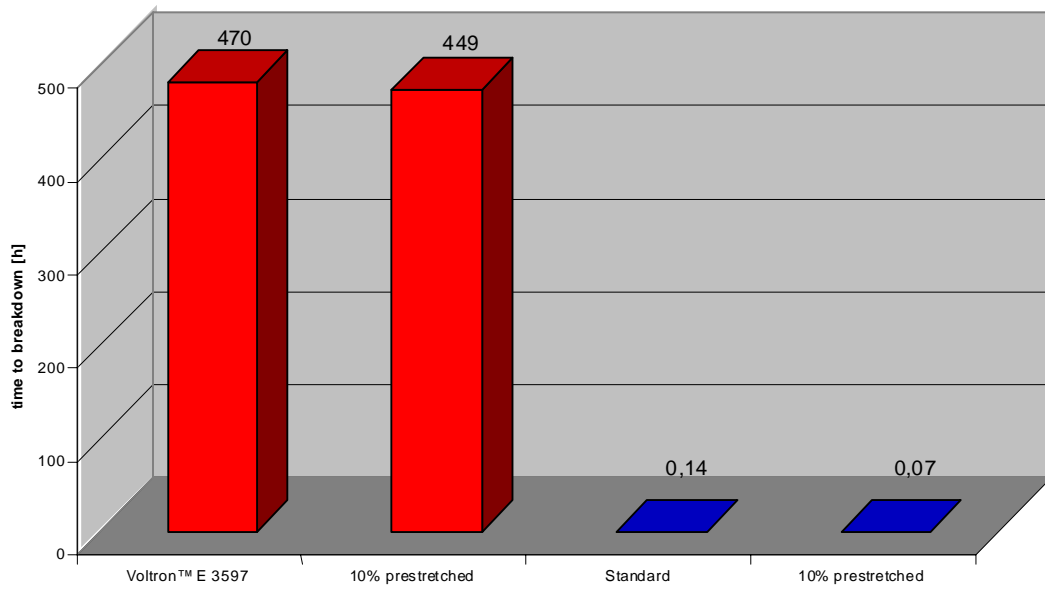
wire enamel	Voltron® 3597/40
recirculating air oven	8 m, vertical
application	dies, 8 passes
oven temperature	550 °C
conductor diameter	1.0 mm
enamelling speed	50 m/min
increase in diameter	79 µm

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Table 3: Test results

flexibility and adherence, mandrel test, 1 x d, after pre-stretching of	15 %
heat shock: 1 x d, 30 min.	200 °C
cut- through temperature: measured, tested.	380 °C 390 °C
resistance to abrasion: medium force, minimum force.	11.8 N 10.5 N
resistance to solvents, given as pencil hardness: as delivered, IEC standard solvent, DuPont™ Voltatex® impregnating varnishes, DuPont™ Voltatex® UP-impregnating resins, DuPont™ Voltatex® EP-impregnating resins.	7- 8 H 7- 8 H 7- 8 H 7- 8 H 7- 8 H
dissipation factor tan δ-intersection point	186 °C
lifetime on frequency inverter, at 155°C, 16 kHz, 2.4 kV P-P; increase in diameter 47µm (see figure 1): as delivered, after 10% pre-stretching	470 h 449 h
temperature index acc. to ASTM D 2307, 20000 h value (top coated with PAI E 3564)	222 °C

Figure 1: Voltron[®] 3597 Coated M/W Compared to Standard M/W (Lifetime under Inverter Duty at 155 °C)



Bare copper diameter: 0.3mm; frequency inverter: 16KHz, 2.4kV P-P