

# TOPLAC C4-PR

## Electrical insulation varnish

### PRODUCT TDS

DOLPHIN COATINGS

معرفی مختصر TOPLAC C4-PR

#### SIMILAR PRODUCT

1. TOPLAC C4-CL
2. TOPLAC C4-CL-ES
3. TOPLAC C4-PG
4. TOPLAC C4-PB
5. TOPLAC C4-GRAY

شارلاک TOPLAC C4-PR یک محصول تک جزئی حلال پایه، هواخشک است که بر اساس رزین اپوکسی مدیفای شده تولید میگردد. کلاس حرارتی این محصول در گروه H (180 درجه سانتیگراد) و در قام رنگی اخراپی با ویسکوزیته پایین قابل ارائه میباشد. طیف کاربرد این محصول برای انواع استاتورها، ترانسفورمرها و سایر سیم پیچ ها و مصارف عمومی است که سختی، مقاومت الکتریکی و حرارتی و همچنین مقاومت به رطوبت و مواد شیمیایی از ویژگی های بارز این محصول میباشد.

جهت اعمال و کاربرد TOPLAC C4-PR از رقیق کننده SOLVLAC S 150 استفاده گردد و میزان ترکیب رقیق کننده بسته به روش کاربرد- قلم مو، غوطه وری، اسپری یا اسپری بدون هوا متفاوت است. این محصول را دور از نور مستقیم آفتاب و شعله و در شرایط استاندارد انبار میتوان بمدت یکسال نگهداری نمود.

# TOPLAC C4-PR

## Product description

TOPLAC C4-PR is a single component, impregnating varnish, based on a specially modified resin with long-term tank stability and a thermal rating of 155-180 °C .

This product has a moderate viscosity Red liquid easy use.

The product consists of a polymeric binder, the so-called solid content and a solvent mixture .

Reducer SOLVLAC S150 will be available for the dilution of the varnish. It is designed for use in applications where high bond strength and or good moisture and chemical resistance is required .

Polymerization is initiated by the effect of atmospheric oxygen and proceeds as a rapid chain-reaction until a three-dimensionally cross linked, duroplastic cured material is produced.

## Areas of application

Preferred applications for TOPLAC C4- PR

- Transformer
- Electronic device
- General use

## Properties of resin

The tough-hard material displays good mechanical and dielectric properties even under high temperatures. Windings impregnated with TOPLAC C4-PR show good bond strength. In addition, the dried material displays good resistance to the effects of mechanical tense.

## Storage and stability

Under appropriate storage conditions, protected from humidity and solar radiations, TOPLAC C4-PR and reducer SOLVAC 150 can be stored in unopened container at 20-30 °C for 12 months.

## Flow time (viscosity)

TOPLAC C4-PR is produced with a relative low viscosity: 160-200 sec measured with Ford 4-cup at 25 °C (ø 4 mm acc. ASTM D1200).

The kind of processing, e.g. with higher ambient temperatures, leads to rising losses of solvent and increased flow time. In this case it will be necessary to adjust the flow time by addition of reducer SOLVLAC S150.

## Processing methods

TOPLAC C4-PR is using as a finishing varnish or as impregnating varnish. In the impregnating process it has to be carried out with a corresponding impregnating material.

The flow time of air-drying varnish in opened container will increase permanently due to the evaporation of solvent, film forming can occur additionally. Therefore the containers should be closed carefully after application, the flow time should be checked frequently and adapted with reducer SOLVLAC 150 if required. Like all solvent based products, TOPLAC C4-PR should be stirred up carefully before each application .

TOPLAC C4-PR can be applied by dipping, brushing, with flow time when delivered. When it is used as spray, it is recommended to add 10-20 % of reducer SOLVLAC 150 .

The drying of the varnish will be normally at room temperature, time can be shortened by support of heat, for instance with hot air at 70-90 °C.

It will be necessary to follow instructions of Material Safety Data Sheet (MSDS) for varnish and reducer.

# TOPLAC C4-PR

## Properties of varnish as supplied

Property	Value	Unit
Shelf life at 25° C	12	Months
Appearance/ Color	Liquid/Red	
Density at 23°C, DIN 51757	0.95	g/l
Content of binder (1g/1h/130°C), ISO 3251	48	%
Viscosity (Brookfield at 25°C, spindle 2, speed 20 rpm)	40-80	cp
Flash point	26	°C

## Dielectric properties in dried condition

Test criterion	Condition	Value	Unit
Volume resistivity after water immersion test following IEC 60464 part 2	Initial value	$>10^{16}$	$\Omega \times \text{cm}$
	7 d storing	$>10^{15}$	
Volume resistivity at elevated temperature test following IEC 60464 part 2	155 °C	$>10^{11}$	$\Omega \times \text{cm}$
	180 °C	$>10^{11}$	
Electrical strength, after water immersion test following IEC 60464 part 2	Initial value	$> 140$	KV/mm
	24 h storing		
Electrical strength, at elevated temperature test a following IEC 60464 part 2	155 °C	$> 100$	KV/mm
	180 °C	$> 100$	
Temperature at relative permittivity $\text{tang } \alpha = 0,1$ test following IEC 60250	50Hz	-	
	1KHz	$> 130$	°C
	10 KHz	$> 207$	

## Drying condition

Surface	Property	25 °C	Value	Unit
Touch-dry	Shelf life at 25° C	30 min	12	Months
		4H		
Non slip	Fully dried	24 H	Liquid/colorless	
	Appearance/ Color			
	Density at 23°C, DIN 51757		0.95	g/l
	Content of binder (1g/1h/130°C), ISO 3251		48	%
	Viscosity (Brookfield at 25°C, spindle 2, speed 20 rpm)		40-80	cp
	Flash point		26	°C

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## Mechanical properties in dried condition

Test criterion	Condition	Value	Unit
Bond strength	23 °C	> 80	N
	155 °C	-	
	180 °C	-	
Mandrel test ( 3 mm )	23 °C	140	°
Adhesion on steel UNI EN ISO 2409 Double application	40 μ	80	%

## Temperature index

Test criterion	Condition	Value
Proof voltage IEC 60172	1000 V	180

Test criterion	Condition	Value	Unit
Resistance to vapour of solvents following IEC 60464 part 2	Acetone	resistant	-
	Xylene	resistant	
	Methanol	resistant	
	Hexane	resistant	
	Carbon disulphide	resistant	
Water absorption following IEC 62	at 23 °C	<5	mg
	0,5 h at 100 °C	< 10	

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