



# PROTAVIC® PNE 30270

Formerly PROTAVIC® L 127

A-28517-08-02B

## DEFINITION

A solvent-free, single component resin with low linear expansion and high ionic purity for protecting semi-conductor silicon crystals.

## PRODUCT DESCRIPTION

Appearance	liquid	
Odour	light	
Colour	black	
<b>Guaranteed specifications</b>	<b>Standards</b>	<b>Methods</b>
% Ash residue	75 ± 2	PROTEX TGA 1
Brookfield viscosity (mPa.s)	70 000 ± 30 000	NFT 51210 Mob. 7 - 20 t/min.
Peak temperature (°C)	160 ± 10	PROTEX DSC 1
<b>Significant value (for guidance)</b>		
Density	1.7 approx.	
<b>Other information</b>		
Pot life at 20 ± 2°C	5-6 days	
Possible curing	30-40 min. at 125°C 5-10 min. at 150°C 1-2 min. at 175°C Post-curing for 1 h at 150°C is recommended in all cases.	
Storage stability	3 months below -20°C	

## APPLICATION PROPERTIES

The consistency of **PROTAVIC® PNE 30270** coating resin has been designed for application by micro-dispenser.

The rheology allows good wetting of surfaces in contact with the resin and also good adhesion. It is possible to fill cavities less than 1 millimetre in size.

Adjusting the automatic dispensers is made easier by the fact that the viscosity of the product remains stable for one week at 18-22°C.

One must take care however not to leave the product, after dispense, in contact with moist air for longer than 1 to 2h. Although not strongly hygroscopic, **PROTAVIC® PNE 30270** resin shows a slight drop in glass transition in the presence of moisture. It is therefore preferable to cure as quickly as possible after applying the product.

We recommend removing **PROTAVIC® PNE 30270** resin from the freezer 15 to 30 minutes before it is due to be used in order for it to reach a temperature of between 18 and 22°C.

## **METHOD OF USE**

**PROTAVIC® PNE 30270** resin is supplied frozen and ready for use. It can be supplied in syringes designed to fit on the microdispenser, which has the advantage of avoiding handling operations which encourage the entrainment of air bubbles.

When the product is supplied in pots, the resin should preferably be degassed for 15 minutes under a vacuum of less than 1mm of mercury. In the absence of stirring, during the vacuum treatment, provide a container which is at least 6 times higher than the initial height of resin.

Optimum application is provided by means of a pneumatic dispenser and needles with an internal

diameter of between 0.5 and 1.5 mm. The product can be cured at temperatures from 125°C for a period of at least 30 minutes, but post-curing for 1-2 h at 150-175°C is recommended in order to achieve optimum protection of a silicon crystal.

## **TYPICAL PROPERTIES OF THE CURED SYSTEM**

The properties set out below were obtained after curing for 1h at 175°C.

They were determined following measurements carried out in the laboratory over a small number of tests.

They are values given by way of guidance, and do not constitute a guarantee. It will be for the user, in all cases, to carry out his/her own tests to determine whether **PROTAVIC® PNE 30270** resin can be used for the particular application which he/she has in mind.

### **1/ PHYSICO-CHEMICAL PROPERTIES**

<b>PROPERTIES</b>	<b>METHODS</b>	<b>UNITS</b>	<b>TYPICAL VALUES</b>
Density at 20°C	NFT 51201	g/cm <sup>3</sup>	1.7
Shear strength at 20°C	NFT 76107	MPa daN/cm <sup>2</sup>	> 5.0 > 50
Flexing resistance at 20°C	NFT 51001	MPa daN/cm <sup>2</sup>	110 - 120 1 100 - 1 200
Flexing modulus at 20°C	NFT 51001	MPa daN/cm <sup>2</sup>	12 000 - 13 000 120 000 - 130 000
Shore D hardness	NFT 51109	--	80 - 90
Chlorine content	MIL-STD-883	µ/g	< 10
Sodium content	MIL-STD-883	µ/g	< 20

### **2/ ELECTRICAL PROPERTIES**

<b>PROPERTIES</b>	<b>METHODS</b>	<b>UNITS</b>	<b>TYPICAL VALUES</b>
Dielectric rigidity	NFC 26255	kV/mm	> 15
Dielectric constant at 100 HZ and 20°C	NFC 26230	--	5.0 ± 0.5
Electrical dissipation factor at 100 HZ and 20°C	NFC 26230	--	< 0.01
Transverse resistivity	NFC 26215	Ω.cm	> 10 <sup>+13</sup>

### 3/ THERMAL PROPERTIES

PROPERTIES	METHODS	UNITS	TYPICAL VALUES
Glass transition temperature Tg	PROTEXDSC 1*	°C	145 - 155
Coefficient of linear expansion from -50 to +50°C	PROTEXTMA 1*	10 <sup>-6</sup>	18 - 20
Coefficient of linear expansion from 100 to 250°C	PROTEXTMA 1*	10 <sup>-6</sup>	65 - 75
Thermal conductivity	PROTEXCTH2	W/(m.K)	> 0.05
Decomposition temperature	PROTEXTGA 1*	°C	> 350
Linear shrinking	NFT51401	%	< 0.15
Temperature content	-	°C	65 to 150

\* Thermo-analysis chain Mettler TA 3000.

#### FIELD OF USE

**PROTAVIC® PNE 30270** single-component, high purity insulating resin has been developed for protecting semi-conductors in the field of MCM, chip carriers, hybrid circuits and chip on board applications.

It is generally recommended for large-sized semi-conductors.

The high ionic purity guarantees good reliability of the semi-conductor. The same is true of the adhesion on different substrates which offers optimum protection against external agents (moisture, dust, etc).

#### PRECAUTIONS IN USE

Refer to the attached safety data sheet.

#### PACKAGING

The **PROTAVIC® PNE 30270** resin is supplied in 50 g pots and in 100 g syringes.

*The information contained in this data sheet corresponds to the present state of our knowledge ; it is intended for your guidance but we are not bound by it since we are not in a position to exercise control over the manner in which our products are used. Moreover, the attention of the user is drawn to the risks that could possibly occur should a product be used for an application other than that for which it is intended.*