

DEFINITION

A single-component, solvent-free product, **PROTAVIC® PNE 30251** is an electrically insulating resin for protecting silicon dies.

it is recommended as fill material.

The rheology of the **PROTAVIC® PNE 30251** is suitable for application on automatic machines by microdispenser.

The expansion coefficient of 10 ppm/°C is a benefit to protect dies of about 10 x 10 mm size.

PRODUCT DESCRIPTION

Appearance	liquid	
Odour	faint	
Colour	black	
Guaranteed specifications	Standards	Methods
Plate cone viscosity at 25°C of PROTAVIC® PNE 30251 (mPa.s)	60 000 ± 15 000	NFT 51211
Other information		
Pot life at 20-25°C	5-6 days	
Specific gravity at 20°C (g/cm ³)	1.8	
Possible curing cycles	30-40 min at 125°C 5-10 min at 150°C 1-2 min at 175°C	A postcure of 1h at 150°C is recommended
Storage stability	1 year at T < -20°C 1 year at T < -40°C	

APPLICATION PROPERTIES

The consistency of the **PROTAVIC® PNE 30251** adhesive has been designed for application by dispensing but its rheology allows numerous sticking operations without runs.

In all these methods of application the 5 days pot life and absence of any solvent guarantee a con-

stant viscosity and therefore an ease in setting up the dispenser.

Do not let the **PROTAVIC® PNE 30251** in contact with humid air more than 1-2 hours. The product is not hygroscopic but air humidity could give a low glass transition temperature. The best is to cure immediately after dispensing.

The best is to keep out the **PROTAVIC® PNE 30251** 15-30 min from the refrigerator before use to get a temperature of 18-22°C. A heating of the dispenser and of the substrate up to 80°C is possible to fluidize the **PROTAVIC® PNE 30251**.

METHOD OF USE

If there has been no break in the cold storage chain, no appreciable sedimentation occurs and it is pointless rehomogenizing the **PROTAVIC® PNE 30251**.

If there has been a break in the cold storage chain, stir at 60-80 rpm for 5 mn taking care, as far as possible, to avoid gesting air bubbles in the product. Control if the surface to be joined are clean.

- First, clean them to remove dust and grease. Use a flame or solvent vapour if possible. Avoid chlorinated solvents which encourage corrosion.
- Apply the resin with a micro-dispenser and needles of internal diameter 1.5 mm.
- A pretreating of the needle and/or of the substrate at 60-80°C is recommended.
- Cure in accordance with one of the curing cycles which is compatible with the component, substrate and manufacturing conditions.

The product has been designed to cure over 125°C and the best properties are achieved after 30-60 minutes. A postcure of 1-2 hours at 150-170°C is recommended.

TYPICAL PROPERTIES OF THE POLYMERIZED SYSTEM

The properties below were obtained after 1 hour polymerization at 175°C.

They were determined subsequent to measurements made in the laboratory in a small number of tests.

They are values which are given by way of indication only and do not constitute a guarantee.

The user should in all cases determine by means of personal tests whether it is possible to use the **PROTAVIC® PNE 30251** system in his specific application.

A - PHYSICO-CHEMICAL PROPERTIES

Properties	Methods	Units	Typical values
Colour	--	--	black
Density at 20°C	NFT 51201	g/cm ³	1.8
Shear strength	NFT 76107	daN/cm ² MPa	> 50 > 5.0
Chlorine content	S 86005 MIL 883	µg/g	< 10 < 100
Na content	MIL 883	µg/g	< 100
K content	MIL 883	µg/g	< 100
Flexural strength at 20°C	ISO 178	MPa daN/cm ²	60-80 600-800
Flexural modulus at 20°C	ISO 178	MPa daN/cm ²	9000-11000 90000-110000

B - ELECTRICAL PROPERTIES

Properties	Methods	Units	Typical values
Dielectric strength	NFC 26255 CEI 243	KV/mm	> 15
Dielectric constant 100 Hz at 20°C	NFC 26230 CEI 250	--	5.0 ± 0.5
Electrical dissipation factor at 100 Hz at 20°C	NFC 26230 CEI 250	--	< 0,01
Volume resistivity	NFC 26215 CE 193	ohm.cm	> 10 ⁺¹³

C - THERMAL PROPERTIES

Properties	Methods	Units	Typical values
Glass transition temperature Tg	DSC 1*	°C	80 - 110
Linear expansion coefficient from -50°C to +50°C	TMA 1*	10 ⁻⁶	10 - 12
Linear expansion coefficient from 100 to 250°C	TMA 1*	10 ⁻⁶	25 - 30
Thermal conductivity	CTH 2	W/(m.K)	0.7
Decomposition temperature	TGA 1*	°C	< 0.15
Use	--	°C	-55 à +155

* Mettler TA 3000 thermo-analysis line.

FIELDS OF USES

The **PROTAVIC® PNE 30251** insulating and thermo-conductive adhesive has been specially developed for protecting large dies of about 10x10 mm. The major applications are MCM, chip carriers, chip on board and BGA.

PRECAUTIONS IN USE

Refer to the enclosed health and safety data sheet.

PACKAGING

The **PROTAVIC® PNE 30251** is supplied in 500 g cartridges.

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.