PROTAVIC® PNU 90250

(formerly PROTAVIC® UA 250 UV)

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DEFINITION

Dielectric screen printable varnish which cures under UV radiation for protecting flexible keyboards made of polyester-terephthalate.

PRODUCT DESCRIPTION

Appearance	viscous liquid	
Odour	fresh	
Colour	blue	
Guaranteed specification	**Standard**	**Method**
Viscosity (25°C-50 rpm) Cone and Plane CP51	3 000 ± 600 mPa.s	NFT 52211
Significant value (for guidance)		
Density	1.1 approx.	
Other information		
Energy required for curing	≤ 0.5 J/cm²	
Storage stability	6 months at 20°C	

APPLICATION PROPERTIES

The viscosity of the **PROTAVIC® PNU 90250** system is not very high, so it is suitable for screen printing applications. The cured **PROTAVIC® PNU 90250** system has good dielectric properties, which enables it to be used for protecting conductive circuits.

After curing under ultra-violet radiation, the **PROTAVIC® PNU 90250** system adheres very well on the majority of substrates (polyester, polycarbonate, glass epoxy...).

USING THE PRODUCT

1 - Application process

It is essential to protect the **PROTAVIC® PNU 90250** system from light whilst it is being applied in order to avoid any premature curing.

If necessary, the viscosity of the **PROTAVIC® PNU 90250** system can be reduced simply by heating. The **PROTAVIC® PNU 90250** system remains stable for some hours at a temperature of 45°C, provided it is protected from ultra-violet radiation.

Its viscosity enables it to be applied easily by screen printing using screens with a mesh size of between 70 and 240; usually screens with a mesh size of between 120-200 are used. Under these conditions thicknesses of between 10 and 50 microns are obtained.

The **PROTAVIC® PNU 90250** system is slightly thixotropic, which helps prevent sedimentation. Although **PROTAVIC® PNU 90250** varnish is a filled system, it has an outstanding storage stability. It is recommended however that after the **PROTAVIC® PNU 90250** system has been stored for a few weeks, it should be stirred slightly to ensure that it is perfectly homogeneous before being applied.

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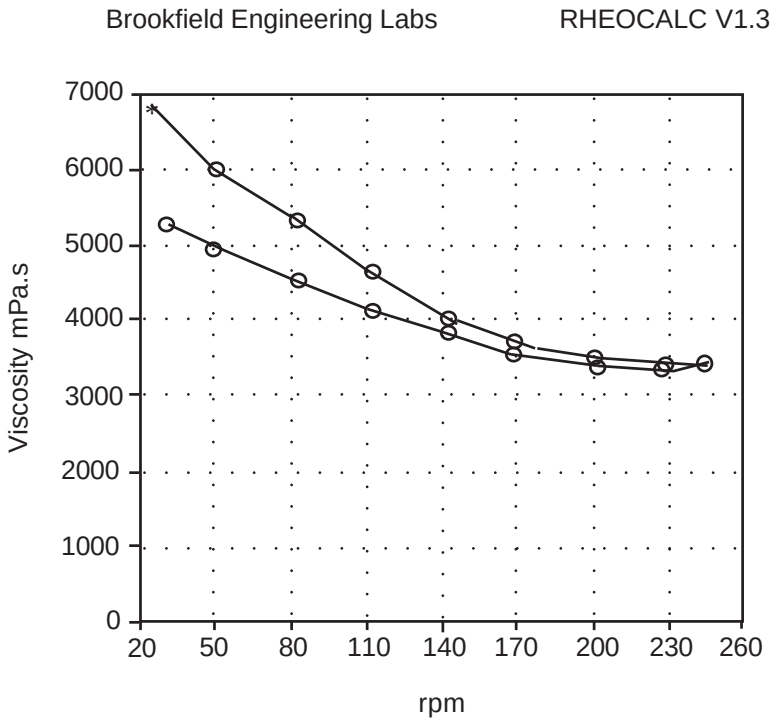
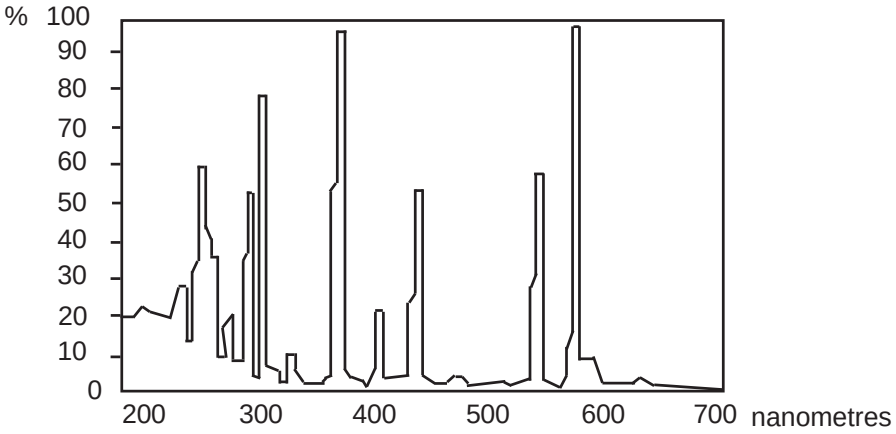
Graph no. 1 shows the variation in viscosity according to the speed of the cone (angle 1.5).



2 - Curing under UV radiation

The ultra-violet radiation used for curing the **PROTAVIC® PNU 90250** system is obtained from low or high pressure mercury lamps. These lamps emit a discontinuous spectrum with emission bands which may have different relative intensities depending on the types. The UV spectrum generally ranges from 250 to 450 nm, but with a maximum in the absorption zone of the photo-initiator (365-366 nm) contained in the **PROTAVIC® PNU 90250** system.

For a high pressure mercury vapour lamp which has the following spectral distribution:



The exposure time needed to cure the **PROTAVIC® PNU 90250** system is less than 10 seconds.

3 - Use of the PROTAVIC® PNU 90250 system

The **PROTAVIC® UA 250 UV** system is very easy to use. Simply apply the **PROTAVIC® PNU 90250** system on the substrate concerned, then expose the coating to radiation from a UV lamp for a matter of a few seconds. The two operations may be carried out one after the other, without a break, but there is nothing to prevent the first operation being carried out and then performing the second operation some time later, provided that the semi-completed work is kept away from UV radiation (sunlight) in order to prevent uncontrolled curing.

The advantage of the **PROTAVIC® PNU 90250** system, besides its excellent properties, is that no solvent is evolved during curing. The **PROTAVIC® PNU 90250** system in fact contains 100% active matter.

FIELDS OF USE

The **PROTAVIC® PNU 90250** system, after curing, forms a strong flexible polymer which has good physical and chemical properties. In particular it has good dielectric properties. It also adheres strongly to the majority of plastic and mineral substrates.

It can therefore be recommended for use, especially in the field of protecting conductive tracks on flexible keyboards and in the field of surface coatings in general.

PROTECTING CONDUCTIVE TRACKS ON FLEXIBLE KEYBOARDS

The viscosity of the **PROTAVIC® PNU 90250** system is suitable for screen printing applications. After curing, the **PROTAVIC® PNU 90250** system forms a flexible film which is perfectly able to follow any movements of a flexible substrate. In fact, the film can withstand prolonged bending through of 180°C.

The cured **PROTAVIC® PNU 90250** system provides good protection against moisture, which is a plus feature when protecting easily corrodable surfaces.

TYPICAL PROPERTIES OF PROTAVIC® UA 250 UV PRODUCT POLYMERISED

Properties	Methods	Units	Typical values
Dielectric strength	NFC 26255	kV/mm	> 10
Dielectric constant at 100 Hz and 20°C	NFC 26230	--	4.2
Transverse resistivity	NFC 26215	ohm.cm	$> 10^{13}$
Decomposition temperature	PROTEX TGA 1	°C	> 300
Tensile strength	R 9502	kg/cm^2	110
Elongation on break	R 9502	%	20

STORING AND PRESERVING THE PRODUCT

Because of its reactivity to UV radiation, the **PROTAVIC® PNU 90250** system should be stored away from light and heat (do not store at temperatures in excess of 30°C).

The **PROTAVIC® PNU 90250** system should also be stored away from powerful oxidizing agents.

Under these conditions, the **PROTAVIC® PNU 90250** system has a storage stability at 20°C of 6 months.

PRECAUTIONS IN USE

Refer to enclosed safety data sheet.

PACKAGING

The **PROTAVIC® PNU 90250** system is supplied in 5 kg boxes.