

## DEFINITION

**PROTAVIC® PNE 90397** is a UV-curing epoxy resin designed for smart card glob-top application. **PROTAVIC® PNE 90397** is especially developed to reach low coefficient of thermal expansion and high glass transition temperature in order to pass the new thermal cycling. reliability test of Smart Card market.

## PRODUCT DESCRIPTION

Appearance	liquid	
Odor	slight	
Color	white to grey	
<b>Guaranteed specification</b>	<b>Standard</b>	<b>Method</b>
Viscosity CP 51 at 25°C and 5 rpm	7 500 ± 1 000 mPa.s	NFT 51211
<b>Other information</b>		
Density	1,7 approximately	
% Dry matter	100	
Filler particle size	< 100 µm	
Energy required to cure a 500 µm thickness Glob-Top	3 - 5 J/cm <sup>2</sup>	
Curing time of 500 µm thickness Glob-Top (about 100 mW/cm <sup>2</sup> UV radiation)	30 seconds approx.	

## APPLICATION PROPERTIES

The rheological behavior of **PROTAVIC® PNE 90397** is adapted for glob-top application.

After curing under ultraviolet radiation, **PROTAVIC® PNE 90397** exhibits a good adhesion on most of the substrates, such as glass fibber epoxy and alumina

After polymerisation, **PROTAVIC® PNE 90397** allows a good protection against exterior aggression.

## METHOD OF USE

### 1 - Application process

During handle, it is recommended to keep **PROTAVIC® PNE 90397** away from light in order to avoid the uncontrolled starting of polymerisation.

**PROTAVIC® PNE 90397** can be easily applied with micro-dispenser.

## 2 - UV polymerization

It is strongly recommended to use high power UV lamp with good ventilation in order to avoid a too high polymerisation temperature. Indeed, the optimum temperature is comprised between 20 to 45 °C. Beyond, the curing time could be increase slightly.

### Evolution of the polymerisation after UV exposure

**PROTAVIC® PNE 90397** continues to polymerise after UV exposure (this phenomenon is called dark cure). Thus, it is strongly recommended to wait for at least 24 hours after UV exposure before testing cured **PROTAVIC® PNE 90397**, in order to let it to reach its optimum properties.

## TYPICAL PROPERTIES OF POLYMERIZED SYSTEM

These values given are typical and do not correspond to a guarantee. The user must, in all cases, by his own studies, determine the optimal polymerization conditions for his own particular application of **PROTAVIC® PNE 90397**.

## PHYSICO-CHEMICAL PROPERTIES

PROPERTIES	METHODS	RESULTS
Shore D hardness	NFT 51109	92 approx
Glass transition temperature	TMA	100°C
Coefficient of thermal expansion T < T <sub>g</sub> T > T <sub>g</sub>	TMA	30 x 10 <sup>-6</sup> /°C 80 x 10 <sup>-6</sup> /°C

## STORAGE CONDITIONS

It is recommended to store **PROTAVIC® PNE 90397** in its hermetically sealed container, protected from moisture and light, at temperature below +5°C. Under these conditions, the maximum period of storage is about 1 year.

## PRECAUTION IN USE

Refer to the attached material safety data sheet.

## PACKAGING

**PROTAVIC® PNE 90397** is delivered in 1 kg opaque package.

*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.*