

## DEFINITION

**PROTAVIC® PNE 90593** is a high thixotropy UV epoxy resin designed for smart card Dam in Dam and Fill application.

## PRODUCT DESCRIPTION

Appearance	paste
Odour	slight
Colour	off-white

Guaranteed specifications	Standards	Methods
Viscosity CP51 at 25°C and 5 rpm	17 000 ± 3 000 mPa.s	NFT 51211

Other information	Typical Values	Methods
Thixotropic Index (10 / 100 rpm)	5.0	NFT 51211
Density	1.4 approximately	
Solvent	0 %	TGA 1
Filler particle size	< 80 µm	ISO 1524
Filler content	48.5 % typical	TGA 1
Energy required to cure a 500 µm thickness fill	3 - 4 J/cm <sup>2</sup>	R 1001
Curing time of 500 µm thickness dam (at 120 mW/cm <sup>2</sup> UV A - metal halide bulb)	30 seconds approx.	R 1001

## APPLICATION PROPERTIES

The rheological behaviour of **PROTAVIC® PNE 90593** is suited for the Dam application. It is strongly recommended to use **PROTAVIC® PNE 90593** (Dam) with **PROTAVIC® PNE 90293** (Fill). Both products are very similar in composition, thus they are chemically compatible and their coefficients of thermal expansion are similar.

After curing under ultraviolet radiation, **PROTAVIC® PNE 90593** exhibits good adhesion on many smart card substrates such as glass fiber epoxy.

After polymerisation, **PROTAVIC® PNE 90593** provides good environmental protection.

## USING PROTAVIC® PNE 90593

### 1 - Application process and rheological properties

**PROTAVIC® PNE 90593** should be protected from light before use.

**PROTAVIC® PNE 90593** can be easily applied with a micro-dispenser. The rheological behaviour of **PROTAVIC® PNE 90593** provides a geometrically stable dam after dispensing (and before polymerisation).

## 2 - UV polymerisation

**PROTAVIC® PNE 90593** fastly cures to tack-free material under UV radiation. Typical UV-curing conditions are 30 seconds at 120 mW/cm<sup>2</sup> UV A with metal halide bulb. If these conditions are not available a thermal post cure at 80-120°C during 15-30' can allow to reach optimum properties.

### Evolution of the polymerisation after UV exposure

**PROTAVIC® PNE 90593** continues to polymerise after UV exposure. It is strongly recommended to wait for at least 24 hours after UV exposure before testing, in order to let **PROTAVIC® PNE 90593** develop its optimum properties.

### **TYPICAL PROPERTIES OF CURED PROTAVIC PNE 90593**

Properties	Typical Values	Methods
Shore D hardness	82 approx.	NFT 51109
Glass transition temperature	60 °C approx.	TMA 1
Coefficient of thermal expansion from 30 to 150°C	115 ppm/°C	TMA 1

### **STORAGE CONDITIONS**

**PROTAVIC® PNE 90593** can be stored at room temperature but it is recommended to store it in original sealed container protected from moisture and light at temperature below 5°C to get a maximum period of storage (6 months),  
Usual packaging: black SEMCO cartridge, 32 oz or 20 oz.

### **PRECAUTIONS OF USE**

Refer to enclosed safety data sheet.

### **DISCLAIMER**

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