



# PROTAVIC® ANE 10931

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## **DEFINITION**

Fast flow, fast cure capillarity underfill. The rheology of the **PROTAVIC® ANE 10931** in combination with its high glass transition temperature and its very low coefficient of thermal expansion make the product perfect for high reliability underfill applications.

It presents a good pot life at room temperature 20-22° C and high reactivity at moderate temperature.

## **PRODUCT DESCRIPTION**

Appearance	viscous liquid	
Odor	faint	
Color	grey	
<b>Guaranteed specifications</b>	<b>Standards</b>	<b>Methods</b>
Cone and plate viscosity (5 rpm - 25° C)	25 000 ± 5 000 mPa.s	NFT 51211
<b>Other information</b>		
Pot life* at 20 ± 2° C	3 days	
Density	1.65 approx.	
Possible curing cycles	- 6 minutes at 135° C - 3 minutes at 150° C - 60 to 90 seconds at 175° C	
Storage stability	- 3 months at T < 5° C - 6 months T < - 40° C	
Viscosity increase after 24 hours at 20 ± 2° C	no evolution measured	

\* defined as 100 % viscosity increase.

## **APPLICATION PROPERTIES**

The **PROTAVIC® ANE 10931** adhesive combines excellent adhesive and thermal properties. Its good latency enables it to be kept at  $20 \pm 2^\circ \text{C}$  for three days, so the viscosity remains virtually unchanged throughout the working day. It possesses excellent properties in terms of adhesion and protection against harmful environmental factors, due to its high purity epoxy base. It is 100% cross-linkable by heat at temperature of between  $125$  and  $200^\circ \text{C}$ .

3) Preheat flip chip assembly to between  $90$  and  $120^\circ \text{C}$  (higher temperatures are possible in the case of small components, as the underfill time is reduced).

4) Apply the adhesive by dispensing, using a syringe (very small diameter needles may be used) on one or two sides of the chip perimeter.

5) Cure using one of the curing cycles with a compatible with the components, the substrate and the manufacturing conditions.

## **METHOD OF USE**

1) Take the container out of the freezer not more than 30-45 minutes before use in order to prevent any re absorption of moisture.

2) Work on clean surfaces or clean all surface in order to remove any dirt or grease. Do not deposit the adhesive on a substrate which as just been cleaned with chlorinated solvents.

## **FIELDS OF USE**

The **PROTAVIC® ANE 10931** adhesive excellent properties make it especially suitable for use in the microelectronics fields.

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

<b>PROPERTIES</b>	<b>METHODS</b>	<b>UNITS</b>	<b>RESULTS</b>
Color	--	--	grey
Density at $20^\circ \text{C}$	NFT 51201 ISO 1675		about 1.65
Shear strength	- $3'/150^\circ \text{C} + 30''/200^\circ \text{C}$	daN/cm <sup>2</sup>	> 100
	- $3'/150^\circ \text{C} + 5'/260^\circ \text{C}$	daN/cm <sup>2</sup>	> 100
Viscosity	NFT 51211	mPa.s	about 25 000
Shear Thinning Index (0.5/5 rpm)	NFT 51211		about 1
Filler content	TGA 1	%	about 60 %

## 2 - THERMAL PROPERTIES

PROPERTIES	Methods	UNITS	RESULTS
Coefficient of thermal expansion from -50° C to 120° C from 180 to 260° C	TMA 1	ppm/°C ppm/°C	25 100
Glass transition temperature	TMA 1	°C	150
Decomposition temperature in air	TGA 1	°C	about 430
Loss of weight between 25 and	TGA 1		
- 100°C - 200°C - 300°C - 350°C		% % % %	about 0.1 about 0.25 about 0.35 less than 0.5

### **PRECAUTION IN USE**

Refer to the attached material safety data sheet.

### **PACKAGING**

The **PROTAVIC® ANE 10931** adhesive is supplied in 12g or 40g 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.*