PROTAVIC® ANE 10931

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DEFINITION

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

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	
Guaranteed specifications	**Standards**	**Methods**
Cone and plate viscosity (5 rpm - 25° C)	25 000 ± 5 000 mPa.s	NFT 51211
Other information		
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.*

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APPLICATION PROPERTIES

The **PROTAVIC® ANE 10931** adhesive combines excellent adhesive and thermal properties.
Its good latency enables it to be kept at 20 ± 2° C for three days, so the viscosity remains virtually unchanged throughtout 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 betwen 125 and 200° C.

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 deposite the adhesive on a substrate which as just been cleaned with chlorinated solvents.

3) Preheat flip chip assembly to between 90 and 120° 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 sustrate and the manufacturing conditions.

FIELDS OF USE

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

1- PHYSICO-CHEMICAL PROPERTIES

PROPERTIES	METHODS	UNITS	RESULTS
Color	--	--	grey
Density at 20°C	NFT 51201 ISO 1675		about 1.65
Shear strength	- 3'/150° C + 30''/200° C - 3'/150° C + 5'/260° C	daN/cm^2 daN/cm^2	> 100 > 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 thermmal 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.