PROTAVIC® ACE 10131

Formerly PROTAVIC® CM 3271-3 FC

A 28981-08-06 B

DEFINITION

A silver filled, fast curing, solvent free, single-component electro-conductive adhesive.

It has a pot life of 48 hours and its rheology is well-suited to application by microdispenser and screen printing on automatic lines.

Its reactivity enables it to be cured on-line at 150-200°C especially in the manufacture of tantalum capacitors. It outstanding features are : high ionic purity, good flexibility and good adhesion.

It is a more viscous, and latent version of the **PROTAVIC® ACE 10110**.

This new resin **PROTAVIC® ACE 10131** is thus better designed for the microdispensing.

PRODUCT DESCRIPTION

Appearance	paste	
Odour	faint	
Coulour	silver	
Guaranteed specifications	**Standards**	**Methods**
% Ash residue	70 ± 2	TGA 1
Plate viscosity at 25°C (mPa.s)	2 000 ± 500	NFT 51211
Calorimetric pic (°C)	152.5 ± 10	DSC 1
Resistivity after curing 5 min. at 200°C (mΩ.cm)	< 0.3	ECA 1
Other information		
Density	2.9 approx.	
Curing cycles	60-90 minutes at 75°C 30-60 minutes at 100°C 10-20 minutes at 125°C 3-6 minutes at 150°C 1-2 minutes at 175°C 15-30 seconds at 200°C	
Pot life at 20 ± 2°C	48 hours	
Storage stability	6 months at T < -20°C 12 months at T < -40°C	
Pot life* at 20 ± 3°C Increase of 40 % of the viscosity	48 hours 24 hours	

* Pot life defined as a 100% viscosity increase.

JJD

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APPLICATION PROPERTIES

The **PROTAVIC® ACE 10131** resin combines the excellent adhesive properties of epoxy resins with the good electrical conductivity of pure silver.

Its good latency enables it to be kept at 20°C for 1 to 2 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 epoxy base.

It is 100 % cross-linkable by heat at temperatures of between 75 and 200°C.

METHOD OF USE

1 - Take the container out of the freezer not more than 20 to 30 minutes before use in order to prevent any reabsorption of moisture.

2 - Clean all surfaces in order to remove any dirt or grease. Do not put the adhesive on a substrate which has just been cleaned with chlorinated solvents.

3 - Apply the adhesive with :

- a microdispenser. Use needles with an internal diameter of between 0.3 and 1.0 mm.
- a spatula.
- a screen printing machine. Use polyester or stainless steel screens with an 80 to 325 mesh size (strands per inch).
- a pad.

4 - Cure using one of the curing cycles which is compatible with the component, the substrate and the manufacturing conditions.

FIELDS OF USE

The **PROTAVIC® ACE 10131** system's excellent properties make it especially suitable for use in the microelectronics field.

- Tantalum capacitors = sticking slabs onto lead frames.
- Surface mounting = mounting components on printed circuits. Screen printing conductive circuits on flexible or semi-rigid substrates.
- Repairing printed circuits = adhesion which has to allow for differences in rates of expansion between the two materials to be assembled.

1 - PHYSICO-CHEMICAL PROPERTIES

PROPERTIES	METHODS	UNITS	TYPICAL VALUES
Colour	–	–	bright silver
Density at 20°C	NFT 51201	–	2.8 - 3.0
Chlorine content	Extraction 20 h at 100°C MIL STD 883	mg/kg	< 250
Sodium content	Extraction 20 h at 100°C MIL STD 883	mg/kg	< 250
Potassium content	Extraction 20 h at 100°C MIL STD 883	mg/kg	< 50
Shear strength	Silicon chip stuck onto lead frame - MIL STD 883	daN/cm²	> 300
Ionic chlorine content	Method S 86005	mg/kg	< 5

2 - THERMAL PROPERTIES

PROPERTY	Method	UNIT	TYPICAL VALUE
Electrical resistivity	ECA 1	mΩ.cm	< 0.3

3 - THERMAL PROPERTIES

PROPERTIES	METHODS	UNITS	TYPICAL VALUES
Coefficient of expansion : - from -50°C to +50°C - from 100 to 250°C	TMA 1*	 $°C^{-1}$ $°C^{-1}$	 40-50 x 10^{-6} 90-100 x 10^{-6}
Glass transition temperature	TMA 1*	°C	70-80
Thermal conductivity	CTH2	W/(m.K)	2.5 - 3.0
Decomposition temperature in air	TGA 1**	°C	390 - 410
Loss of weight between 25°C and : - 100°C - 200°C - 300°C	TGA 1**	 % % %	 0.1 - 0.2 0.3 - 0.4 0.8 - 1.0

** Thermomechanical analysis TMA Mettler -20°C/min., force 0.1 N over 1 mm².*
*** Thermogravimetric analysis TG 50 Mettler -10°C/min., in 200 ml/mn. stream of air 200.*

PRECAUTIONS OF USE

Refer to the enclosed safety data sheet.

PACKAGING

The **PROTAVIC® ACE 10131** is supplied in 25 g, 100 g, 500 g, 1 000 g pots or in 350 g and 850 g cartridges.