PROTAVIC® BCM 60260

Single component silver filled conductive paste

Formerly PROTAVIC® CM 3326 E

A 27907-08-05 B

DEFINITION

The **PROTAVIC® BCM 60260** is a single component polyimide paste which, after curing, gives a heat stable mass possessing electrical and thermal conductivity.

Its adhesion to various substrates (glass, plastics resistant to high temperature, ceramics) makes it especially suitable for mounting components which have to withstand extreme stresses, when the properties of epoxies and silicones become insufficient.

It has been developed for making electrically conductive layers on capacitors capable of withstanding temperatures in excess of 200°C.

The **PROTAVIC® BCM 60260** is characterized by its good electrical conductivity and by its thin and smooth layer on capacitors anodes.

PRODUCT DESCRIPTION

Nature	silver loaded polyimide paste	
Appearance	opaque viscous liquid	
Odour	of ether	
Colour	silver	
Guaranteed specifications	**Standards**	**Methods**
Viscosity at 25°C (mPa.s)	1250 ± 250	NFT 51211
Resistivity after 1 h at 150°C + 1 h at 275°C (mohms.cm)	< 0.1	ECA 1
Residue 900°C (%)	44 ± 2	TGA 1
Other information		
Density at 20°C	1.7	
Diluent, if necessary	**PROTAVIC® 902** diluent	
Storage life	6 months at 15-25°C 1 year at 4-7°C	
Curing	1 h at 150°C + 1 h at 275°C	
Pot life at 20-25°C	6 months	

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APPLICATION PROPERTIES

The consistency of the **PROTAVIC® BCM 60260** paste has been designed to make it suitable for application by dipping. The long pot life of the product ensures that its viscosity will remain constant by whichever of these methods it is applied.

After curing, the **PROTAVIC® BCM 60260** paste shows exceptional mechanical and electrical properties due to its decomposition temperature of around 500°C, which makes it especially suitable as dipping resin for high temperature capacitors.

CONDITIONS OF USE

1 - Mixing instructions

After a prolonged period of storage, homogenize the product thoroughly in its original container to make sure that the silver is thoroughly distributed throughout the system.

2 - Applying the product

The viscosity remains virtually constant at ambient temperature provided measures are taken to limit the evaporation of the solvents, for example by placing an enclosure around the dipping equipment. An open container of **PROTAVIC® 902** diluent will help to maintain a saturated atmosphere which will limit evaporation.

The **PROTAVIC® 902** diluent may be used to lower the viscosity and compensate for evaporation, and it will also help to clean the dipping bath and other equipment.

3 - Drying and curing

Since the product is a polyimide, a two-stage heat treatment is required :

- drying for between 30 min. and 1 h at 40 to 150°C to remove the solvents,
- then curing for between 30 min. and 1 h at 190-275°C to complete the cross-linking of the resin.

The above mentioned conditions are suitable for coats which do not exceed 50 µm.

Thicker coats can be applied by taking care of drying the resin for a few minutes at 50-90°C before undergoing treatment at 150°C ; the thicker the coat, the longer the drying time required, and so these will have to be determined in each case to prevent blistering.

The good latency of the **PROTAVIC® BCM 6026**0 enables components to be mounted after drying at 70-80°C. It is then re-melted at around 150-200°C.

For complete curing, components/substrates need to undergo treatment at 275°C for at least 30 min.

Curing may be carried out at lower temperatures (provided they are over 190°C) but this leads to lower glass transition temperatures than when curing is carried out at 275°C and in longer curing times depending on the application.

TYPICAL PROPERTIES OF THE CURED SYSTEM

The following properties were obtained after curing for 1 h at 150°C + 1 h at 275°C.

They were determined following measurements carried out in the laboratory in a small number of tests.

They are values given by way of guidance, and do not constitute a guarantee.

It will be for the user, in all cases, to carry out his/her own tests to determine whether the **PROTAVIC® BCM 60260** can be used for his/her own particular application.

APPLICATIONS

The silver-loaded single component **PROTAVIC® BCM 60260** paste has been specially developed for capacitors and components in the electronics industry, when they have to withstand brief temperature rises of up to 500°C, or high continuous thermal stresses corresponding to temperatures in excess of 200°C.

It is used in the electronics industry for dipping operations where its thermostability and good electrical and thermal conductivity ensure a much greater level of reliability in operation than with epoxies.

Its high ionic purity also avoids problems of corrosion, which would otherwise reduce the working like of the systems.

It can be applied by dipping. It is not toxic and can be applied by taking the usual precautions for solvent based thermo-setting paints.

STORAGE STABILITY

The **PROTAVIC® BCM 60260** silver loaded paste has a storage stability of 6 months, in its original packaging well closed, away from humidity and at a normal storage temperature of 15 to 20°C.

Maximum storage temperature : 25°C.

It can be stored for as long as one year in a refrigerated chamber.

PRECAUTIONS IN USE

Refer to the enclosed safety data sheet.

PACKAGING

The **PROTAVIC® BCM 6026**0 is supplied in 2000 g flasks.

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1 - PHYSICO-CHEMICAL PROPERTIES

PROPERTIES	STANDARDS	UNITS	TYPICAL VALUES
Colour	--	--	silver
Density at 20°C	NFT 51201	--	1.7
Chlorine content (extraction 20 h/100°C)	MIL 883	µg/g	< 20
Sodium content	MIL 883	µg/g	< 50

2 - ELECTRICAL PROPERTY

PROPERTY	STANDARD	UNIT	TYPICAL VALUE
Electrical resistivity	ECA 1	mΩ.cm	0.06

3 - THERMAL PROPERTIES

PROPERTIES	STANDARDS	UNITS	TYPICAL VALUES
Glass transition temperature	TMA 1	°C	190 - 210
Thermal conductibility	CTH 2	W(m.k)	3
Decomposition temperature in air	TGA 1	°C	500 -550