PROTAVIC® C 370

A 27769-08-06 B

DEFINITION

PROTAVIC® C 370 is a hot curing pure silver-based single-component electroconductive varnish in solvent media, for gluing and coating of high temperature electronic components.

PRODUCT DESCRIPTION

Appearance	opaque viscous liquid
Odour	of ether
Colour	silver

Guaranteed specifications	**Standards**	**Methods**
% Ash residue at 600°C	69 ± 2	TGA 1
Resistivity after curing : 1/2 h at 65°C + 1 h at 150°C (mΩ.cm)	< 0.3	ECA 1
Plane cone viscosity at 25°C (mPa.s)	10 000 ± 3 000	NFT 51211

Significant values (for guidance)	
Density at 20°C	2.9 approx.
Possible diluent	Diluent **PROTAVIC® 434**

Storage conditions	
Storage in closed packings	1 month at T < 25°C 3 months at T < +10°C 6 months at T < -20°C 1 year at T < -40°C
Pot life - in open packing or on the machine - at 20 ± 5°C due to the evaporation of the solvent	16 hours

APPLICATION PROPERTIES

PROTAVIC® C 370 possesses excellent protection properties against the environment, once it has been cross-linked due to its modified epoxy base.

After evaporation of its solvent phase, it possesses a quick curing speed for a single-component product, especially in thin layer coating, giving a flexible, hard film, which possesses :

- an excellent adhesion to tantalum, graphite, ceramic, quartz, aluminium, glass, metals, enamels, multi-layer materials and thermoset plastics.
- a very high electric conductivity,
- an excellent resistance to heat.

METHOD OF USE

A. Application process

Before each utilisation, **PROTAVIC® C 370** has to be made completely homogeneous by stirring in its original container (with a spatula for small quantities or by rolling the container for some hours at a slow speed, 50 to 150 rpm).

PROTAVIC® C 370 does not need a primary coat. It adheres by simple evaporation of the solvent system it contains. The surface to which it is applied has to be dry, free from oil, grease and dust.

PROTAVIC® C 370 is applied as delivered, after having being homogenised as indicated above.

Given its original viscosity, the preferred application processes for **PROTAVIC® C 370** are :

- dipping of the extremities or the ends of the components,
- brushing,
- silk-screening,
- stencil,
- screen printing.

To obtain the desired viscosity for any particular application **PROTAVIC® 434** thinner can be added exclusively : namely pulverisation.

The **PROTAVIC® 434** thinner can equally be used for removing erroneous deposits of **PROTAVIC® C 370** before drying and polymerisation, as well as for cleaning the application equipment.

B. Drying

PROTAVIC® C 370 has to be dried in a ventilated drying room (regulated at approximately 65°C) for the elimination of the solvent system (a few minutes to a quarter of an hour depending on the thickness deposited). An infra-red drying is also possible.
For a thin layer drying is not necessary.

C. Polymerisation conditions

PROTAVIC® C 370 after evaporation of its solvent phase should be polymerised at 150°C minimum.

Very good adhesive and conductivity properties are obtained after a polymerisation of one hour at 150°C.

When the polymerisation temperature is not an obstacle for the component or the fabrication process, a polymerisation of 30 minutes at 180°C gives optimal adhesion, conductivity and protection against the environment.

TYPICAL PROPERTIES OF PROTAVIC® C 370, POLYMERISED

A. Electrical properties

Properties	Units	Typical values
Polymerisation conditions	Volumic resistivity*	
Drying + 1 h at 150°C	mohm.cm	0.2
Drying + 30 minutes at 180°C	mohm.cm	0.05

* *ECA 1 method (Method available on demand)*

B. Glass transition temperature

Properties	Units	Typical values
Polymerisation conditions	Glass transition temperature**	
Drying + 1 h at 150°C	°C	80-95
Drying + 30 minutes at 180°C	°C	90-105

** *Values obtained by Differential Scanning Calorimeter. (DSC). See annex 1 for graph.*

C. Thermostability in air

Thermogravimetric analysis (***) of **PROTAVIC® C 370** polymerised for 30 minutes at 180°C gives :

Decomposition temperature in air (see graph in annex 2 : first inflexion point of the derived curve)	350°C approx.
Temperature zones : from 25 to 100°C from 25 to 200°C from 25 to 300°C from 25 to 400°C	Weight loss in % : - 0.13 - 0.21 - 0.77 - 5.71

*** *10°C/minute under air sweep (200 ml/minute)*

FIELDS OF APPLICATION

Thanks to its good properties and its ease of use, **PROTAVIC® C 370** is best used in consumer and professional electronics market products requiring electrically conductive glues and coating, namely for :

- the manufacture and mounting of discreet components : resistors, tantalum capacitors etc.,
- the attach of conductor wires on quartz crystal,
- production of electroconductive tracks,
- production of electroconductive coatings,
- etc.

CONSERVATION AND STORAGE CONDITIONS (See table on page 1)

Storage at a temperature of less than 10°C is necessary for conserving all the original properties of **PROTAVIC® C 370**.

Also, it is necessary to keep it in its original sealed container, in order to avoid the loss of solvent by evaporation.

In case of necessity it is always possible to compensate for that lost by evaporation by adding **PROTAVIC® 434** thinner exclusively.

PRECAUTIONS TO USE

Refer to the enclosed safety data sheet.

PACKAGING

The **PROTAVIC® C 370** is supplied in 25 g and 100 g pots, in 1 000 g metal boxes or in 850 g cartridges.