

## Certonal FC-742

Fluorochemical Coating

### ► Introduction

Certonal® FC-742 is a clear, low viscosity solution of an oleophobic-hydrophobic fluorochemical acrylate polymer coating carried in an inert hydrofluoroether solvent. The solvent is nonflammable, has low toxicity and provides acceptable environmental properties. It contains no volatile organic compounds (VOCs). When applied to clean, moisture-free surfaces such as copper, aluminum, ceramic, steel, tin or glass, Certonal® coating FC-742 dries to a thin transparent film with excellent anti-wetting, anti-stiction, anti-migration, and anti-corrosion properties required in many diverse applications. This makes it applicable for many uses in the electronics industry including coating printed circuit boards, MR heads, micro motors, ball bearing tracks, MEMS, ink jet print cartridges and various components in hard disk drives. The low surface energy film repels liquids such as lubricating oils, silicones, and photoresist solutions used in the manufacturing of semiconductors. Certonal® coating FC-742 will form a clear, nearly invisible, uniform film that is insoluble in solvents such as heptane, toluene, and water. It is strippable with fluorinated solvents. FC742 films can endure up to 175°C for prolonged periods and maintain good repellency.

### ► Typical Properties\*

Form	Low viscosity fluid (hydrofluoroether)
Appearance	Clear, colourless to light-coloured liquid solution
Solids	2% w/w
Specific Gravity @25°C	1.52
Flash Point	None
Thermal Stability of Dry Film	Repellent to chlorinated silicone oil after 24 hrs at 175°C
Surface Energy of Dry Film	11-12 dynes/cm
Volume Resistivity @30% RH 25°C, 10V DC (ohm-cm)	$3.3 \times 10^{15}$
Dielectric Constant @30% RH, 25°C @1 kHz	3.4
Coating Thickness (dip coated)	~1 micron
Dissipation Factor @30% RH, 25°C @1 kHz	0.0088
Dielectric Strength @30% RH, 25°C	1.1 kV/25.4 microns
Refractive Index	1.37

\* Not intended for specification purposes

### ► Advantages

Low surface energy films cast from Certonal® FC742 have excellent repellency to hydrocarbon oils, silicone oils, synthetic fluids and aqueous solutions. With a surface energy of 11-12 dynes/cm, Certonal® FC742 films compare favorably to coatings of polyethylene and polytetrafluoroethylene, which have surface energy values of approximately 31 and 18 dynes/cm respectively. This property enables non-solubilising solvents such as heptane, toluene, and water as well as liquids having low surface tension values such as lubricating oils, silicones, etc. to bead and drain freely from surfaces coated with Certonal® FC742 while leaving the film intact.

## Certonal® FC-742 Fluorochemical Coating

### ► Typical Applications

The low surface energy, insolubility in non-fluorinated solvent systems and film forming properties exhibited by Certonal FC742 make it ideal for use as an anti-migration barrier for many applications. Certonal FC742 can be used as a non-wetting barrier coating to prevent lubricants migrating from critical wear zones in mechanisms varying in size from watches to maritime gyroscopes. A thin coating of Certonal FC742 applied to the outer race of a miniature precision bearing can prevent lubricant loss by migration and this prolong the service life of the bearing.

Certonal FC742 may be used to coat electronic contacts in relay systems. Unprotected relay contacts can become contaminated with migrating silicone oil. The collection of oil on these critical surfaces can result in malfunctions due to the formation of open circuits.

Certonal FC742 may also be used as a protective coating on circuit boards to help prevent corrosion. It's excellent electrical properties normally ensure that the coating can be applied to connectors and other components without any need to mask.

Ease of application	Excellent
Removable	Yes
Solder-through reparability	Yes
Solvent / Chemical resistance	Excellent
Ease of Cure / Dry	Dries at room temperature and can be handled in under five minutes
Shelf Life	Indefinite in unopened containers
Transparent	Yes
Environmental	Low in toxicity, non ODP, non VOC, non-flammable.
One part system	Yes
Low labour content	Yes – normally no need to mask
Application options	Dipping recommended

### ► Product Safety and Handling

Before using this product, please read the current product Material Safety Data Sheet (available through your Acota sales or technical service representative) and the precautionary statement on the product package. Follow all applicable precautions and directions.

### ► Important Notice to Purchaser

The information in this publication is based on tests that we believe are reliable. Your results may vary due to differences in test types and conditions. You must evaluate and determine whether the product is suitable for your intended application. Since conditions of product use are outside of our control and vary widely, the following is made in lieu of all express or implied warranties (including the implied warranties of merchantability or fitness for a particular purpose): Except where prohibited by law, Acota's only obligation and your only remedy, is replacement or, at Acota's option, refund of the original purchase price of product that is shown to have been defective when you received it. In no case will Acota be liable for any direct, indirect, special, incidental, or consequential damages (including, without limitation, lost profits, goodwill, and business opportunity) based on breach of warranty, condition or contract, negligence, strict tort, or any other legal or equitable theory.