

## Certonal<sup>®</sup> FC-752 Electronic Coating

### ► Introduction

Certonal FC-752 is a clear, low viscosity, low surface tension solution of a fluorochemical polymer coating carried in a hydrofluoroether solvent. The solvent is non-flammable, low in toxicity and provides acceptable environmental properties for today's demanding electronic applications. When applied to clean, moisture-free surfaces such as copper, aluminium, ceramic, steel, tin or glass, Certonal FC-752 dries to a thin transparent film with excellent anti-wetting, anti-stiction, anti-migration, and anti-corrosion properties required in many diverse applications. Certonal FC-752 will form a clear, nearly invisible, uniform film that is insoluble in solvents such as heptane, toluene and water. The polymer covalently bonds to glass and metal oxide layers. These films can endure up to 200°C for prolonged periods and maintain good repellency.

### ► Advantages

The low surface energy films cast from Certonal FC-752 have excellent repellency to hydrocarbon oils, silicone oils, synthetic fluids and aqueous solutions. With a surface energy of 14-15 dynes/cm, Certonal FC-752 films compare favourably 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 FC-752 while leaving the film intact. Certonal FC-752 coating exhibits many of the practical characteristics desired in a coating system, as seen below, making it especially well-suited for many applications.

### ► Typical Properties

Properties	Certonal <sup>®</sup> FC-752
Solids Content by Weight	2%
Specific Gravity @ 25°C	1.43
Solvent	Highly fluorinated liquid
Solvent Boiling Point	76°C
Flash Point	None
Thermal Stability of dry film	Less than 5% wt. loss at 200°C after 1 hour in air
Surface Energy of dry film	14-15 dynes/cm
Dry Film Thickness	100nm - 1µm depending on application
Tg	-63°C
Contact Angles (static, dip coated/ cured on glass)	105° (water), 65° (hexadecane)
Refractive Index	1.41
Dielectric Constant	3.45 (at 10Hz), 3.04 (at 1kHz), 2.61 (at 1MHz)
Dissipation Factor	0.05 (at 10Hz), 0.04 (at 1kHz), 0.03 (at 1MHz)
Dielectric Breakdown Strength	1500 V/mil (20°C, 30% RH)
Environmental	Low in toxicity, non-ODP, non-flammable, VOC exempt (US EPA)
Dilution	Certonal FC-752 can be diluted to lower concentrations with Certonal FC-758
Transparent	Yes
Removable	No

## ► Application Recommendations

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The low surface tension of the solvent in Certonal FC-752 make it well suited to application by dip coating equipment. The coating solution will wet out on virtually any surface, leaving the fluoropolymer film behind. Care should be taken to keep water out of the system, as contact with water will decrease the pot life of the product. Assemblies dipped into a bath of Certonal FC-752, as with most coatings, should be clean and dry. Masking may not be required for many connector types, but testing is suggested. The coating may be applied by precision spray equipment or precision dispense syringe. The solvent will evaporate quickly and the fluoropolymer film will dry in a matter of minutes, at which time it can be handled for further processing. Certonal FC-752 coating should be thermally cured in an oven to get the best performance from the product. Depending on the assembly, temperatures of 75-100°C for 30-90 minutes duration are generally sufficient to cure the product.

## ► Product Safety and Handling

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To avoid thermal decomposition, neither the coating solution nor the cured fluoropolymer should be subjected to temperatures above 250°C. 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.