



# Novec™ Electronic Coating EGC-1704

## Introduction

3M™ Novec™ Electronic Coating EGC-1704 is a clear, low viscosity solution of a fluorochemical acrylate polymer coating carried in a hydrofluoroether solvent. The solvent is nonflammable, has low toxicity, contains no volatile organic compounds (VOCs), and provides acceptable environmental properties for today's demanding electronic applications. When applied to clean, moisture-free surfaces such as copper, aluminum, ceramic, steel, tin or glass, Novec coating EGC-1704 dries to form an ultra-thin transparent film with excellent anti-wetting, anti-stiction, anti-migration, and anti-corrosion properties for many diverse applications. The low surface energy film repels liquids such as lubricating oils, hydrocarbon oils and silicones. This makes it ideal for many uses in the electronics industry including coating MR recording heads, spindle motors, head gimbal assemblies (HGAs), MEMS, CRTs and LCDs.

Novec coating EGC-1704 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. These films can endure up to 175°C for prolonged periods and maintain good repellency.

## Typical Properties

Not for  
specification  
purposes

Properties	Novec Coating EGC-1704
Appearance	Clear, colorless to light-colored liquid solution
Solids	0.4%
Specific Gravity @ 25°C	1.5
Solvent	3M™ Novec™ Engineered Fluid HFE-7100DL
Boiling Point of Solvent	61°C
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
Coating Thickness (dip coated)	~0.2 micron
Refractive Index of Dry Film	1.38

## Environmental, Health and Safety

Before using this product, please read the current product Material Data Safety Sheet (available through your 3M sales or technical service representative) and the precautions and directions for use on the product package. Follow all applicable precautions and directions.

## 3M™ Novec™ Electronic Coating EGC-1704 Advantages

The low surface energy films cast from 3M™ Novec™ Electronic Coating EGC-1704 have excellent repellency to hydrocarbon oils, silicone oils, synthetic fluids and aqueous solutions. With a surface energy of 11-12 dynes/cm, Novec coating EGC-1704 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-solubilizing 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 Novec coating EGC-1704 while leaving the film intact. EGC-1704 coating exhibits many of the practical characteristics desired in a coating system, as seen below, making it ideal for many applications.

Properties	Novec Coating EGC-1704
Ease of Application	Excellent
Removable	Yes
Solder-through Repairability	Yes
Solvent/Chemical Resistance	Excellent
Ease of Cure/Dry	Dries at room temperature and can be handled in under two minutes
Shelf Life	4 years when stored in the original, unopened container
Transparent	Yes
Environmental	Low in toxicity, non-ozone depleting, nonflammable, not a VOC
One Part System	Yes

## Resources

For additional technical information on Novec coating EGC-1704, call 3M Specialty Materials at one of the numbers below. For other 3M global offices, and information on additional 3M products, visit our web site at [www.3m.com/electronicmaterials](http://www.3m.com/electronicmaterials)

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**800 810 8514** (Fax)

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B-2070 Zwijndrecht  
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### Canada

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P.O. Box 5757  
London, Ontario  
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**800 364 3477**

### Sumitomo 3M Limited

33-1, Tamagawadai 2-chome  
Setagaya-ku, Tokyo  
158-8583 Japan  
**813 3709 8250**

### Asia Pacific and Latin America

Call (U.S.) **651 736 7123**

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[www.3m.com/electronicmaterials](http://www.3m.com/electronicmaterials)

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