

3M™ Novec™ 1710 Electronic Grade Coating

Introduction

3M™ Novec™ 1710 Electronic Grade Coating is a clear, low viscosity, low surface tension solution of a fluorochemical acrylic polymer carried in a hydrofluoroether solvent. Designed for moisture and corrosion protection, it can be used as a concentrate to replenish coating solids in application baths or as a component with other materials to create unique liquid solutions. It has excellent hydrophobic and oleophobic properties. Novec 1710 coating is removable and repairable and does not need post-curing. Novec 1710 coating is nonflammable, low in toxicity, non-ozone depleting and RoHS compliant.

Construction

Solids	Solvent	Color	Container Size
10.0 wt% fluoropolymer	3M™ Novec™ 7100DL Engineered Fluid	Clear	3.5 gal (40 lb/18.1 kg), 1 gal (12 lb/5.4 kg)

Typical Physical Properties

Property	Coating Solution
Appearance	Clear, colorless to light-colored liquid solution
Solids	10 wt% fluoropolymer
Solvent	3M™ Novec™ 7100DL Engineered Fluid
Specific Gravity	1.5
Boiling Point of Solvent	61°C (142°F)
Flash Point	None
Environmental	Low in toxicity, non-ozone depleting, nonflammable, VOC exempt (U.S. EPA), RoHS compliant, contains no chlorine or bromine
System	One Part
Shelf Life	Four years from date of manufacture in unopened container

Property	Fluoropolymer Coating
Appearance	Transparent, colorless
Coating Thickness	1-10 microns (depending on application method)
Solvent and Chemical Resistance	Yes
T _g (glass transition temperature)	44.5°C
Thermal Stability of Dry Film	Repellent to chlorinated silicone oil after 24 hours at 175°C
Contact Angles (static, dip coated/dried on glass substrate)	105° (water), 65° (hexadecane)
Refractive Index	1.39
Solder-Through Repairability	Yes
Dielectric Constant @30% RH	3.1 (@1 kHz)
Dissipation Factor @30% RH	0.0089 (@1 kHz)
Dielectric Breakdown Strength @35% RH	1000 V/mil

Not for specification purposes. All values @ 25°C unless otherwise specified.

Features

- Can be used as a concentrate for maintaining 3M™ Novec™ 1700 Electronic Grade Coating solids concentration in application baths or incorporated with resins or other liquids for a unique solution
- Easy application and processing – dries quickly without the need for thermal post-curing
- Is easily removed for rework & repair
- Allows solder-through repair
- Contains VOC-exempt (U.S. EPA) solvent that has low global warming potential
- Is thermally and electrically stable with excellent dielectric properties
- Can be applied to metals, glass or epoxy laminates
- Provides excellent repellency, anti-wetting and anti-sticking properties against liquids – water, hydrocarbons, silicones, and photoresists
- Is insoluble in solvents such as heptane, toluene and water
- The polymer can endure up to 175°C for prolonged periods and maintain good repellency
- Has low surface energy, which allows lubricating oils, silicones, photoresist solutions, etc. to bead and drain freely from coated surfaces



Application Ideas

Can serve as a concentrate to replenish 3M™ Novec™ 1700 Electronic Grade Coating solids in application baths or with other materials to create unique formulations.

- Provides excellent moisture, chemical and corrosion protection to printed circuit boards and their components
- Is an easy and cost-effective alternative to conformal coatings
- Can be used as a sacrificial surface treatment that can be selectively removed with 3M™ Novec™ Engineered Fluids

Application Techniques

Can be dipped, sprayed* or selectively deposited. Water should be kept out of coating bath as contact will interfere with coating deposition. Surfaces to be coated should be clean and dried before application. Masking may not be required for many connector types – but testing is suggested. The solvent will evaporate quickly and the fluoropolymer film will dry in minutes.

* Spray application is not recommended unless inhalation exposure is eliminated with engineering controls or PPE.

Application Options	Dipping (preferred), spray, syringe dispense
Dilution	Can be diluted with 3M™ Novec™ 7100DL Engineered Fluid
Drying/Curing	Dries at room temperature; can be handled in under two minutes
Removability	Removable with Novec 7100DL Engineered Fluid

Safety, Handling, Storage, Shelf Life

To avoid thermal decomposition, the coating solution should not be heated above 150°C (302°F) and the dried fluoropolymer film should not be heated to temperatures above 250°C (482°F). When stored under conditions of 16-27°C (60-80°F) and less than 60% R.H. in the original, unopened container, the shelf life is certified for four years. Before using this product, please read the current product Material Safety Data Sheet (available through your 3M sales or technical service representative or at www.3M.com/Novec) and the precautionary statement on the product package. Follow all applicable precautions and directions.

For Additional Information

To request additional product information or sales assistance, contact 3M Customer Service at one of the numbers below or visit www.3M.com/Novec. For other 3M global offices or information on other 3M products for electronics, visit our web site at 3M.com/electronics.

The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all Novec products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, lubricant deposition and several specialty chemical applications.

3M™ Novec™ Engineered Fluids • 3M™ Novec™ Aerosol Cleaners • 3M™ Novec™ 1230 Fire Protection Fluid • 3M™ Novec™ Electronic Grade Coatings • 3M™ Novec™ Electronic Surfactants

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