

3M™ Electronic Grade Coating 4880

Introduction

3M™ Electronic Grade Coating 4880 is a transparent solution of a 10 wt% fluoropolymer carried in an alkoxysilane and ethanol solvent system. Designed for easy clean and anti-smudge capabilities on a variety of surfaces, it dries to a thin, transparent, permanent film with excellent hydrophobic and oleophobic properties. It has excellent anti-wetting, anti-stiction, anti-migration and anti-corrosion properties and provides a pleasing, tactile feel on touch surfaces. It is typically diluted with 3M™ Novec™ Engineered Fluid and then applied at room temperature. Post-curing increases durability and abrasion resistance. The coating is low in toxicity and RoHS compliant.

Construction

Solids	Solvent	Color	Container Size
10 wt% fluoropolymer	Alkoxysilane (60 wt%) ethanol (30 wt%)	Clear	900 grams, 450 grams

Typical Physical Properties

Property	Coating Solution
Appearance	Clear, colorless to light-colored liquid solution
Solids	10 wt% fluoropolymer
Solvent	Alkoxysilane (60 wt%) ethanol (30 wt%)
Specific Gravity	0.92
Boiling Point of Solvent	78°C
Flash Point	12°C (54°F)
Environmental	Low in toxicity, non-ozone depleting, RoHS compliant, contains no chlorine or bromine
System	Two Part (dilution with 3M Novec Engineered Fluids)

Property	Fluoropolymer Coating
Appearance	Transparent, colorless
Coating Thickness	50-200 nm (when diluted with Novec Engineered Fluid)
Solvent and Chemical Resistance	Yes
T _g (glass transition temperature)	-110°C
Thermal Stability of Dry Film	Stable
Contact Angles (static, dip coated/dried on glass substrate)	90° (water), 50° (hexadecane)
Refractive Index	1.34
Shelf Life	One year from date of manufacture in unopened container
Solder-Through Repairability	Yes

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

Features

- Air-dries in seconds and can be air or heat cured for additional protection and durability
- Produces a pleasing tactile feel on touch surfaces
- Reduces stick-slip friction on glass to enhance the user's experience
- The coating is permanent and cannot be easily removed.
- Doesn't change the appearance of the surface
- Can be applied to glass, metal oxides and ceramics
- Provides excellent repellency, anti-wetting and anti-sticking properties against liquids – water, hydrocarbons, silicones, and many other materials
- Is insoluble in solvents such as heptane, toluene and water
- Dilution with 3M Novec Engineered fluids provides a solution with low surface tension which allows excellent wetting and even coverage over a variety of substrates

Application Ideas

- Provides easy clean, smudge-resistant protection for touch screens, liquid crystal and flat panel displays, mobile electronic handhelds, electronic tablets and other electronic components and devices
- Can serve as
 - an anti-stiction coating for liquid crystal displays, micromotors or MEMS (Micro Electronic Mechanical Systems) components
 - an anti-migration coating for displays, spindle motors or lubricated electronic parts or
 - an anti-corrosion coating for a variety of materials and components

Application Techniques

Can be dipped, sprayed or selectively deposited. Water should be kept out of coating bath as contact will decrease the pot life. Surfaces to be coated should be clean and dried before application. It is typically diluted with 3M™ Novec™ Engineered Fluid and then applied at room temperature. Dilution to 1-5% by weight is generally sufficient for most applications. These solutions are only stable for a limited period of time (4-6 hours) and only the amount that can be used during that time should be prepared at one time. Once applied, the solvent will evaporate quickly and the fluoropolymer film will dry in minutes. The coating should be thermally cured for best results.

Application Options	Dipping (preferred), spray, syringe dispense
Dilution	Dilute to 1-5% solids or 1-5% of original product (which is a 10% solution)
Drying/Curing	Dries at room temperature; can be cured at 130°C for 10-15 minutes
Solution Stability	Stable for 4-6 hours
Removability	Permanent once cured

Safety, Handling, Storage, Shelf Life

To avoid thermal decomposition, the coating solution should not be heated above 100°C (212°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 one year. 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/electronics) 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/electronics. For other 3M global offices or information on other 3M products for electronics, visit our web site at 3M.com/electronics.

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