

3M™ Novec™ 2202 Electronic Grade Coating

Introduction

3M™ Novec™ 2202 Electronic Grade Coating is a clear, low viscosity, low surface tension solution of a fluorinated polymer diluted in 3M™ Novec™ 7200 Engineered Fluid. The fluorinated polymer coating is intended to add anti-smudge properties and improves the lubricious feel of a variety of glass and glass-like surfaces such as flat panel displays, touch screens and mobile electronic device components. The coating dries to a thin, transparent, permanent film with excellent hydrophobic and oleophobic properties. Thermal curing provides added durability, chemical resistance and abrasion resistance. The solution is nonflammable, non-ozone depleting and RoHS compliant.

Construction

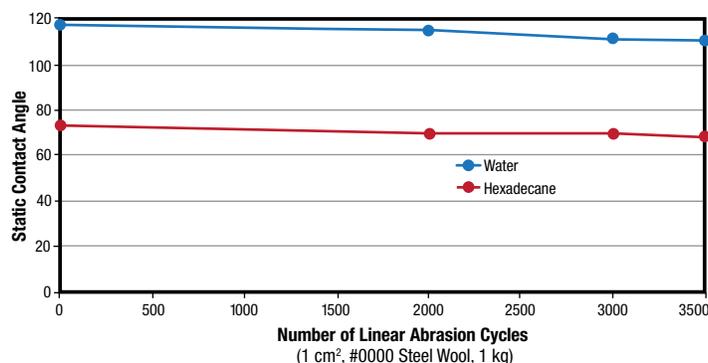
Solids	Solvent	Container Size
0.2 wt% fluorinated polymer	3M™ Novec™ 7200 Engineered Fluid	1 gal (11 lb/5.0 kg), 3.5 gal (38 lb/17.2 kg) 55 gal (600 lb/272.1 kg)

Typical Physical Properties

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

Property	Coating Solution
Appearance	Clear, colorless
Solids (active)	0.2 wt% fluorinated polymer
Solvent	3M™ Novec™ 7200 Engineered Fluid
Specific Gravity	1.41
Boiling Point (solvent)	76.5°C
Flash Point (solvent)	None (per closed cup method)
Environmental (solvent)	Non-ozone depleting, nonflammable, VOC exempt (U.S. EPA), RoHS compliant, contains no chlorine or bromine
System	One Part
Property	Fluoropolymer Coating
Appearance	Transparent, colorless
Coating Thickness	< 10 nm
Solvent and Chemical Resistance	Yes
Contact angles (static, glass substrate)	> 110° (water)* > 60° (hexadecane)*

*Measured contact angles can vary based on the type of surface, surface roughness and the application method.



This chart shows that, even after abrasion with steel wool, the Static Contact Angle remains stable. Contact angles are correlated to easy clean capabilities. Measured contact angles can vary based on the type of surface, surface roughness and the application method.

Features

- Cured fluorinated polymer coating is optically transparent and does not alter surface appearance
- Reduces stick-slip friction
- Adheres to a variety of glass and glass-like surfaces
- Has excellent surface wetting due to low surface tension solvent
- Can be applied by dipping, spraying or syringe dispensing
- Air dries in seconds after application
- Addition of thermal curing step significantly improves abrasion resistance
- Once cured, the coating provides excellent anti-wetting and anti-stiction properties
- Contains low level of volatile organic compounds (VOCs) and has low global warming potential

Application Ideas

Provides easy clean, smudge-resistant protection for glass surfaces such as touch screens, liquid crystal and flat panel displays, mobile electronic handhelds, electronic tablets and other electronic components and devices.

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 website at 3M.com/electronics.

Application Techniques

Can be dipped, sprayed or selectively deposited as per the safety and handling requirements stated in the Material Safety Data Sheet (MSDS). Surfaces to be coated should be clean and dry before application. Masking may not be required for larger connector types but testing is always suggested. The solvent will evaporate quickly and the fluorochemical polymer film will dry in minutes.

Application Options	Dip coating, spray coating, syringe dispense
Drying/Curing	Dries at room temperature; can be handled in under two minutes. Thermally cure at 185°C (365°F) for 60 minutes. Other curing conditions can be recommended by 3M technical service representatives.
Removability	Permanent once cured

Safety, Handling, Storage, Shelf Life

To avoid thermal decomposition, the coating solution should not be heated above 150°C (302°F) and the dried fluorochemical polymer film should not be heated to temperatures above 250°C (482°F). Please note that we do not recommend open, manual spraying of the material. Use of automated/robotic equipment that is enclosed and vented is highly suggested. Contact 3M for equipment vendor suggestions. 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 1 year from date of manufacture. 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. Always practice smart and safe industrial hygiene practices.

The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of patented 3M compounds. 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, protective coatings and surface modifiers, 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 Coatings • 3M™ Novec™ Electronic Surfactants

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