



Novec™

Brand

3M™ Novec™ 1700 Electronic Grade Coating offers a high performance, environmentally sustainable coating solution to protect printed circuit boards and electronic components.

A smarter protective coating solution for LED electronics

The transition from mechanical to sophisticated electronic systems in vehicles is creating challenges for the automotive industry when it comes to ensuring that they have the right protection from environmental contaminants, such as moisture, pollution and grime.

Without a protective coating, sensitive electronic components like high density printed circuit boards can quickly corrode and this can lead to electrical shorts, poor performance and failure of the device.

One major global supplier of exterior lighting systems for the automotive industry has discovered a smart, safe and sustainable solution by using 3M Novec 1700 coating to protect the printed circuit board drivers inside rear LED lamps.

This clear, low viscosity, low surface tension fluorochemical acrylic polymer carried in a hydrofluoroether solvent provides a transparent film coating that repels contaminants and protects against oxidation and corrosion caused by humidity.

The coating is long-lasting but can be easily removed if a repair is needed. It also allows for solder-through repairs.

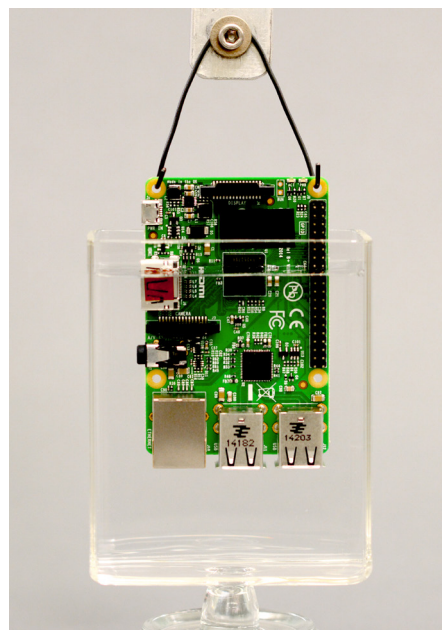
As well as being easy to apply and electrically stable, 3M Novec 1700 coating is a kinder choice for the environment as the solvent is non-flammable and has low toxicity.

A quick, easy and safe application process

The printed circuit board drivers are coated by dipping them into a compact tank filled with 3M Novec 1700 coating. When the components are removed from the tank after just two minutes, the coating evaporates in seconds, leaving behind a transparent, ultra-thin protective lightweight film layer.

No extra cleaning is needed before the drivers are coated as the Novec fluid is inert, so no chemical reaction takes place. There is no need for a curing stage and the coating process does not require any heat source, creating a safe working environment for applicators and saving energy costs.

In addition to dipping, Novec coatings can also be applied by spraying or syringing.



Tried and tested results

A pilot test for the project was carried out and mass production is now taking place in mainland Europe and North America, using a fully automated dipping process that can coat up to two million components every year.

Due to this success, plans are now underway to extend the application to two further automotive plants in Europe.

Benefits of using 3M Novec 1700 coating for automotive applications:

- ▶ Easy application and processing – dries in seconds without the need for thermal post-curing
- ▶ Needs little or no masking
- ▶ Allows solder-through repairability and is easily removed for rework and repair
- ▶ Is thermally and electrically stable with excellent dielectric properties
- ▶ The coating repels and has anti-wetting and anti-sticking properties against liquids, water, hydrocarbons and silicones

Better for the environment

3M Novec 1700 coating is HFC free, non-flammable, has low toxicity and a stable composition. Once released, it has a short atmospheric lifetime and low global warming potential (GWP). This makes it environmentally sustainable and able to stand up to the toughest industry standards. The fluid is RoHS compliant.

3M™ Novec™ Engineered Fluids are designed to balance performance with favourable environmental and worker safety properties. They are available for a wide variety of applications, including heat transfer, cleaning, testing, and lubricant deposition. Novec™ fluids offer excellent dielectric properties; wide range of boiling points; good materials compatibility; low toxicity and non-flammability; low global warming potential; and zero ozone depletion potential.

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, protective coatings, immersion cooling, advanced insulation media replacement solutions 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 ■ 3M™ Novec™ Insulating Gases

Regulatory: For regulatory information about this product, contact your 3M representative.

Technical information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product use: Many factors beyond 3M’s control and uniquely within user’s knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user’s method of application.

Warranty, limited remedy, and disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. **3M makes no other warranties or conditions, express or implied, including, but not limited to, any implied warranty or condition arising out of a course of dealing, custom or usage of trade.** If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M’s option, replacement of the 3M product or refund of the purchase price.

Limitation of liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Electronics Materials Solutions Division
3M United Kingdom PLC
3M Centre
Cain Rd
Bracknell
RG12 8HT
0800 0320841
www.3M.co.uk/novec

UK www.3M.co.uk/Novec
FR www.3M.fr/Novec
ES www.3M.com.es/Novec
DE www.3M.de/Novec
IT www.3MItalia.it/Novec
PL www.3M.com.pl/Novec

NL www.3M.nl/Novec
BE www.3M.be/Novec
AT www.3Maustria.at/Novec
CH www.3MSchweiz.ch/Novec
AE www.3Mae.ae/Novec

3M and Novec are trademarks of 3M Company. Used under license by 3M subsidiaries and affiliates. Please recycle. Printed in the UK. © 3M 2021. All rights reserved. OMG166281_12.

