Technical Data Sheet

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Silfluo LC-FC130

Fluorinated Conformal Coating for Electronics

Description:

Silfluo LC-FC130 is a fluoropolymer electronic coating in a non-flammable fluorinated carrier. It is available in 2%, 5%, and 10% solids grades; other concentrations may be supplied on request. After solvent evaporation, it forms a colorless, transparent, low-surface-energy film. Typical single-coat dry-film thickness ranges from 0.5 to 2.5 μm, depending on grade, and the static water contact angle is ≥110°.

The carrier has no flash point and a boiling range of 50–68 °C. At ambient conditions, typical tack-free times range from approximately 30 seconds for LC-FC130-2 to 2 minutes for LC-FC130-10. Actual drying time depends on film thickness, temperature, ventilation, and humidity.

The cured film has a typical surface free energy of 10–12 mN/m and is designed to reduce wetting by water and oils. It can be evaluated as a thin protective coating for electronic assemblies and as an epilame or lubricant anti-migration treatment for precision parts. Suitability must be confirmed on the intended substrate and assembly. The product has zero ozone depletion potential (ODP) and is RoHS compliant.

Typical Technical Properties:

Product Type:	Matte type
Active Ingredient:	Fluoropolymer
Appearance:	Colorless transparent liquid
Carrier Solvent:	Fluorinated solvent
Solid Content (%):	2%, 5%, 10% (Customizable upon request)
Dynamic Viscosity, 25 °C (mPa·s):	10–30
Odor:	Slight odor
Flash Point:	No flash point
Boiling Range (°C):	50–68

Cured Film Properties (By Grade)

Property	LC-FC130-2	LC-FC130-5	LC-FC130-10
Solid Content:	2.0%	5.0%	10.0%
Cured Film Color:	Colorless	Colorless	Colorless
Film Gloss:	Matte	Matte	Matte
Light Transmittance:	≥ 90%	≥ 90%	≥ 90%
Single-Coat Dry Film Thickness:	0.5 - 1.5 μm	1.0 - 2.0 μm	1.5 - 2.5 μm
Tack-Free Time (ambient conditions):	30s	1min	2min
Static Water Contact Angle:	≥ 110°	≥ 110°	≥ 110°
Static n-Hexadecane Contact Angle	≥ 70°	≥ 70°	≥ 70°
Surface Free Energy (mN/m)	10 - 12	10 - 12	10 - 12
Adhesion (ASTM D3359)	5B	5B	5B
Melting Point	25 - 30°C	25 - 30°C	25 - 30°C
Thermal Stability (1% mass loss):	~ 200°C	~ 200°C	~ 200°C
Dielectric Constant:	3.1	3.1	3.1
Volume Resistivity (Ω·m):	$>10^{14}$	$>10^{14}$	$>10^{14}$
Surface Resistivity (Ω/sq):	$>10^{14}$	$>10^{14}$	$>10^{14}$

The information in this document is believed to be accurate. However, because the conditions and methods of use are beyond our control, customers should conduct their own tests to confirm suitability for the intended application. Recommendations for use do not constitute inducement to infringe any patent. Please contact us if further technical information is required.

Coating Process

Apply by spray, dip, roll, or blade coating using equipment compatible with the formulation. Stainless-steel or PTFE-lined equipment is generally suitable. For dip coating, control withdrawal speed to achieve the required film thickness and uniformity. For spray application, provide adequate local exhaust ventilation. Establish process parameters through trials on the intended substrate.

Applications

1. PCBA and FPCA Protection

May be evaluated as a thin conformal coating for printed circuit board assemblies (PCBAs) and flexible circuits to reduce exposure to moisture, condensation, dust, and oils. Mask or otherwise protect electrical contacts unless the assembly process has been validated with the coating.

2. LED Surface Treatment

May be evaluated as a water- and oil-repellent surface treatment for LED modules where a thin, colorless film is required. Confirm optical performance, adhesion, and appearance on the target module.

3. Precision Anti-Migration (Epilame)

May be applied around lubricated components in watches, micro-motors, cameras, and other precision mechanisms to reduce lubricant migration. LC-FC130-2 provides the lowest listed film build in the series. Confirm performance with the intended lubricant, substrate, surface preparation, and film thickness.

4. Hard Disk Drive (HDD) MR Head Protection

Potential use as a thin contamination and lubricant-migration barrier for magnetoresistive (MR) read heads. This is a precision application; film thickness, adhesion, electrical performance, and cleanliness must be validated before use.

5. Precision Micro-Part Sealing

Potential use on precision parts, MEMS devices, and miniaturized sensors where low film build is important. Confirm dimensional and functional compatibility before production use.

Fluorinated Coating Series – Product Comparison (Typical Values)

Property	LC-FC260	LC-FC633	LC-FC181/183	LC-FC130
Type	Yellow indicator	Standard	High oleophobic	Matte
Water contact angle	≥110°	≥110°	≥118°	≥110°
n-Hexadecane contact angle	≥75°	≥75°	≥80°	≥70°
Surface free energy (mN/m)	10–12	10–11	8–10	10–12
Thermal stability (1% mass loss)	~280°C	~260°C	~260°C	~200°C

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Property	LC-FC260	LC-FC633	LC-FC181/183	LC-FC130
Tg / melting point	Tg 10–15°C	Tg 5–10°C	Mp 70–80°C	Mp 25–30°C
Max single-coat thickness	2.0–3.5 μm	1.5–2.5 μm	3–10 μm	1.5–2.5 μm
Visual indicator	Yellow tint — ambient light	Fluorescent	Fluorescent (183 only)	None; matte film
Color retention	≥30 days	N/A	N/A	N/A

Packing

Available in 100 g, 500 g, 1 kg, and 25 kg packs.

Safety and Storage

Store at 5–35 °C in the original tightly closed container in a cool, dry, and well-ventilated area. Protect from direct sunlight, heat, and ignition sources. The shelf life is 24 months from the date of manufacture when stored in unopened original containers under these conditions. Refer to the current SDS for handling and transport information. Material stored beyond the shelf-life period should be retested against the required properties before use.

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