

Feature of FluoroSurf

- * High performance for anti humid, water proof.
- * High resistant to lithium battery electrode
- * High resistant to acid gas and liquid
- * High insulation
- * Low dielectric constant
- * Non flammable liquid



FLUOROSURF forms a thin film with high moisture-proof, salt water resistant, water-proof, acid-proof, lithium battery electrolyte resistant, and water/oil repellent properties and other protection functions. It has also high insulation resistance, low dielectric constant and other electric properties and is most appropriate for electronic component water-proofing, insulation protection and mounting printed circuit board moisture and water proof coating.



- In comparison with urethane and acrylic moisture-proof coating agents, its moisture-proof performance is four times higher and the thin film can sufficiently ensure moisture-proof effect. Weight increase by the coating film is restricted and therefore this is optimum for light-weight mobile and other devices.
- It is resistant to lithium battery electrolyte, protects the board against leakage of electrolyte and prevents firing.
- It provides high protection effect against acid gas, salt solution and corrosive solutions and prevents corrosion.
- It contains no silicone or other low-molecular compound and causes no contact failure of electric contact points after being coated.
- The agent dries at room temperature in 5 seconds to 30 minutes. Heating is not required.
- The non-flammable solvent does not catch fire and its toxicity is low. It is not subject to the PRTR Law (JAPAN) and Fire Defense Law (JAPAN).
- It's viscosity is low easy to handle. It does not make the workplace

Applications of protection coating agent FluoroSurf

- * Moisture and water proof coat over mounting boards of smart phone and other mobile devices
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- * Coating to protect board from lithium battery electrolyte (firing prevention)
- * Metal ion migration (diffusion) prevention
- * Water and moisture proof coating over mounting board of air conditioner outdoor unit, water heater and other exterior devices
- * Coating to protect boards of devices in the toilet, kitchen and other water sections
- * Coating to protect electronic board and metal components from sulfur gas
- * LED sulfuration control coating



Applications of protection coating agent FluoroSurf

Surface resistivity	Volume resistivity	Permittivity	Dielectric tangent	dielectric strength
$1.6 \times 10^{16} \Omega \cdot \text{cm}$	$2.9 \times 10^{16} \Omega \cdot \text{cm}$	2.25	0.0285	85KV/mm
85°C 85%RH DC10V 500hr	85°C 85%RH DC10V 500hr	1GHz	1GHz	25°C 35%RH

* These data is measured about the film of FG-3030 1micron meter.

Representative Electric Performance of FluoroSurf

【 Moisture Proofness Comparison Data (JIS-Z-0208 40DegC 90%RH) 】

Kind of coating	Film Thickness(μm)	Moisture permeability (g/m ² /24hr)
FluoroSurf FG-3030TH-8.0	8	640
Urethane coating	40	670

FluroSurf FG-3030-30	30	220
Acrylic coating	100	230
Silicone coating	1000	350
FluroSurf FG-3030-20 4times	120	37

■ Film of only about 8 microns presents moisture-proofness of the same degree as that of conventional coating agent of 40 microns. When the film thickness is the same, moisture permeability is approximately 1/3 to 1/4 of that of conventional products.

【Salt Water Proofness (Insulation Breakdown)】

■ This test result suggests the extra patience of our fluorine resin against insulation breakdown by salt water in comparison with general insulation urethane resin.

Item	Film thickness	Time to insulation breakdown	Leakage current at insulation breakdown
FLUOROSURF FG-3030-20	15-20μm	146 min.	0.8 μA
Urethane coating agent of other manufacturer	15-20μm	3 sec.	1000 μA or more

Test Method

1. Coat the surface of each comb-shaped electrode wiring board of slit width of 200 microns respectively with various coating agents and leave them more than 1 hour to dry.
2. Drop 3-5ml of 5% salt water across slits and apply voltage of 18 to 19VDC through the wiring as shown in the left figure.
3. While applying voltage, check the energization condition with an ammeter (measurement limit 0.01μA) until the salt water dries completely.
4. If the leakage voltage exceeds 1000μA, stop the test immediately.

for mounted board ▶ Feature and Line UP of FluoroSurf®

- Various specifications (resin concentration) of film thickness from 0.1 to 40 microns or more can be provided to meet versatile requirements.
- Coating liquid is non-flammable, as it is safe to use and not subject to the Fire Defense Law and PRTR Law.
- Soldering and other repair are possible.
- Blue coloring and fluorescent specifications are optionally available to be used to check the film. (When black light is irradiated, the film shines and can be recognized.)



Normal appearance



Film is visible under the black light

Product Line up for protection PCB from water and humid

Product Model No.	Application / Feature	Film thickness (micron meter)
FS-1610	Acid proof, Water /Oil Repellent, Protect contact point,	0.1-8
FG-3030	Anti moisture film for Mounting Board, Acid proof, Resistance for electrolyte , LED protect from acid gas Soft film It forms soft film for Mounting board.	0.1-40
FG-3650	Anti moisture film for Mounting Board, Acid proof, Resistance for electrolyte , LED protect from acid gas Soft film It forms soft film for Mounting board.	0.1-40
FG-5040	Hard film (Pencil Hardness 3H) Anti acid	0.1-10