Novec™ Replacement Technology Comparison

nanoproof®

Aculon® NanoProof® electronic coating series offers anti-wetting, anti-stiction, chemical protection, and moisture protection. The NanoProof® 3 series has similar performance and chemical properties as 3M™ Novec™ products (see Figure A), providing a readily available and accessible alternative to the 3M™ Novec™ product series. This product series is available in North America, Europe, and Asia.

3M™ Novec™ Products	Aculon® Replacement
	NanoProof® 3-01
Novec™ 1700	NanoProof® 3-02
Novec™ 1702	NanoProof® 3-002
Novec™ 1710	NanoProof® 3-10
Novec™ 1720	NanoProof® 3-001X
Novec™ 1902	NanoProof® 3-02
Novec™ 1904	NanoProof® 3-04
Novec™ 1908	NanoProof® 3-08
Novec™ 2704	NanoProof® 3-04
Novec™ 2708	NanoProof® 3-08
Novec™ 7100	NanoProof® 3 Extender

Figure A

	3M™ Novec™ Product		Aculon® Replacement NanoProof® Product	
	2704	2708	3-04	3-08
Solids	Fluoroacrylate 4%	Fluoroacrylate 8%	Fluoroacrylate 4%	Fluoroacrylate 8%
Solvent	7200 and <5% PGMEA		Aculon® FS-350	
Appearance	Yellow-Orange		Light Green	
Density	1.4 g/ml		1.49 g/ml	
Viscosity	1.75 cP	4.9 cP	<20 cP	<20 cP
Boiling Point	78°C		56.2°C	
Flash Point	None		None	
Environmental	Non-ozone depleting, low in toxicity, low in GWP, RoHS compliant and VOC exempt (per U.S.-EPA), contains no chlorine or bromine		Non-ozone depleting, low in toxicity, low in GWP, RoHS compliant and VOC exempt (per U.S.-EPA), contains no chlorine or bromine	
Shelf Life	2yrs in unopened package from manufacture date		2yrs in unopened package from manufacture date	
Thickness (depending on application style)	0.1-4um	0.4-5um	0.25-2um	0.25-4um
Solvent and Chemical Resistance	Resists a variety of solvents and chemicals, dissolves in acetone		Resists a variety of solvents and chemicals. Attacked by fluorosolvents and ketones.	
Tg (glass transition)	53°C		~95°C from peak on DSC (Viscous Pool by 70°C)	
Thermal Stability of Dry Film	Can withstand 175°C for 24hrs and maintain repellency		Can withstand 175°C for 24hrs and maintain repellency	
Contact Angles	WCA/OCA: 105°/65°		WCA/OCA: 120°/80°	
Refractive Index	1.39		n=1.376 @632.8nm	
Solder Through Repairability	Yes		Yes	
Non-flammability	Meets UL 94 V-0		Meets UL 94 V-0	
Coefficient of Thermal Expansion - TMA	88 um/(m·°C)		205 ppm/°C	
Thermal Conductivity	0.1 W/m*K		0.064 W/m*K	
Dielectric Constant @ 30% RH	3.2(@1kHz)		2.15 @ 1kHz	2.74 @ 1MHz / 2.41 @ 1 GHz
Dissipation Factor @ 30% RH	0.001(@1kHz)		0.0516 @ 1 kHz	0.033 @ 1 MHz / <0.084 @ 1 GHz
Dielectric Breakdown Strength @ 35% RH	2500V/mil		3600V/mil	
Cure	None		None	
Application	Anti-stiction, Chemical Protection, Corrosion Protection, Moisture Protection		Anti-Wetting, Anti-stiction, Chemical Protection, Corrosion Protection, Moisture Protection	
Application Location	PCB, Electrical Components		PCB, Electrical Components	

Contact an Aculon® representative to learn which NanoProof® product best suits your application!

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