Novec™ Replacement Technology Comparison

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		
	1902	1904	1908	3-02	3-04	3-08
Solids	Fluoroacrylate 2%	Fluoroacrylate 4%	Fluoroacrylate 8%	Fluoroacrylate 2%	Fluoroacrylate 4%	Fluoroacrylate 8%
Solvent	blend 7100/7200			Aculon® NanoProof® 3 Series Extender		
Appearance	Clear			Light Green		
Density	1.43 g/ml			1.43 g/ml		
Viscosity	0.81 cP	1.11 cP	2.2 cP	<20 cP	<20 cP	<20 cP
Boiling Point	75°C			75°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)	0.1-1um	0.5-6um	0.4-5um	0.2-2um	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)	44.5°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	70 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	0.002(@1kHz)			0.0516 @ 1 kHz	0.033 @ 1 MHz	<0.084 @ 1 GHz
Dielectric Breakdown Strength @ 35% RH	2000 V/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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