9-984-LVF (Ultra Fluorescing) Conformal Coating

DESCRIPTION

9-984-LVF is a single-component, 100% solids conformal coating specifically formulated for rapid, room-temperature cure when exposed to long wave (320-380 nanometer) UV light. Thin-layer coatings cure in seconds and fluoresce brightly upon exposure to black light. 9-984-LVF also exhibits excellent adhesion to a variety of metal, ceramic, and glass-filled epoxy surfaces. It is a moderately low-viscosity coating which can be cured by exposure to UV light and secondarily with heat for shadowed areas on densely populated circuit boards. 9-984-LVF retains a relatively high-brilliance fluorescence after curing and will not fade.

TYPICAL UNCURED PROPERTIES

Solvent Content	None	
Appearance	Single Component/Clear Fluorescing Liquid	
Specific Gravity	1.05	
Shelf life	12 months	
Viscosity	150 cP (nominal)	ASTM D-1384

TYPICAL CURED PROPERTIES

PHYSICAL

Durometer Hardness	D80	ASTM D-224
Tensile at Break	6,000 psi	ASTM D-638
Elongation at Break	5%	ASTM D-638
Modulus of Elasticity	60,000 psi	ASTM D-638
Water Absorption	0.4%	ASTM D-570
Cross Hatch Adhesion Test:	Copper 100%	ASTM D-3359
	G-10 100%	ASTM D-3359

THERMAL

Thermal Limit (brittle/degrades)	-55° to 175°C (-65° to 350°F)	DSTM D-200*
Coefficient of Linear Thermal Expansion	69 x 10^{-6} in/in/°C	ASTM E-831

ELECTRICAL

Dielectric Strength	1,800 V/mil	ASTM D-1304
Volume Resistivity	35.8 x 10^{12} ohm-cm	ASTM D-1304
Surface Resistivity	384 x 10^{12} ohm	ASTM D-1304
Dissipation Factor, 1 MHz	0.03	ASTM D-1304
Dielectric Constant, 1 MHz	3.4	ASTM D-1304

*DSTM refers to Dymax Standard Test Method

RoHS Compliant

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CURE SCHEDULE - UV Cure with 365 nm UV light [1]:

Cure Time (seconds)	Intensity mW/cm^2	Dymax Lamps
30	50	2000-EC
5	250	5000-EC
1	2,500	F-450

9-984-LVF is designed with an optimum level of fluorescent indicator to allow cure and to fluoresce under a black light. Though UV conformal coatings do not fluoresce as brightly as traditional solvent-based coatings, the following steps should permit adequate brightness for easy inspection:

1. Avoid overcuring the conformal coating. The UV-cure schedule listed above is adequate. Lengthening exposure to UV light lowers fluorescence.
2. Inspect coated boards under black light in a shrouded area. Indirect indoor lighting decreases the effect of the black light in revealing the fluorescence.

Heat Cure Following UV Exposure

Heat can be used as a secondary cure mechanism in shadow areas not exposed to UV light. UV cure must be done prior to heat cure. Application may involve dip, spray, or curtain coat. The following cure options may be used:

120°C	250°F	30 minutes
150°C	300°F	15 minutes

HANDLING AND DISPENSING ADHESIVE

Typically, Dymax 9-984-LVF is sprayed. For questions relating to dispensing, curing systems, the products, or the use of products, contact Dymax Application Engineering.

Repeated or continuous skin contact may cause sensitization and should be avoided. Do not wear jewelry. The use of barrier hand cream is recommended. Do not wear absorbent gloves. Adhesive may be removed with hand soap and water. Avoid eye contact. See CAUTION below. Wipe excess adhesive with paper towels; remove residue with chlorinated solvents, freon, methanol, ethanol, or isopropanol.

STORAGE AND SHELF LIFE

Do not expose to UV light or sunlight. Material may polymerize upon prolonged exposure to ambient light. Replace lid immediately after use. Protect the product from freezing as it may begin to crystallize and thicken. If this should occur, nominal viscosity can be restored by gently warming at 38° to 49°C (100°-120°F) with occasional stirring. This “freeze/melt” process has no effect on the product’s properties. This material has a minimum 12-month shelf life from date of shipment, unless otherwise specified, when stored between 10˚C [50˚F] and 32˚C [90˚F] in the original, unopened container.

CAUTION

For industrial use only. Avoid breathing vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with water for at least 15 minutes; get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, induce vomiting at once and call a physician. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. For specific information, refer to the product Material Safety Data Sheet.

NOTES

[1] $E_{uv} = \frac{mW}{cm^2} * S = \frac{mJ}{cm^2}$

For example, if the intensity of a light source is 2500 mW/cm^2 and a part is exposed for 1 second, then the total UV energy would be $\frac{2500\ mJ}{cm^2}$ or 2.5 J/cm^2.