APTEK LABORATORIES, INC.
ISO 9001 / AS9100 Certified

28570 Livingston Avenue, Valencia, CA 91355-4171 • (661) 257-1677 FAX (661) 257-8939

TECHNICAL DATA & INFORMATION

UVIBOND™ 7107T-PMF
UV-Curing, Urethane Adhesive

PRODUCT DESCRIPTION

UVIBOND 7107T-PMF is 100% solids, one component, premixed frozen electrically insulating, urethane system designed for the attachment of electrical/electronic components mounted on printed circuit boards. This system provides an excellent combination of flexibility and strength for demanding applications where toughness is required for the management of thermomechanical stresses.

UVIBOND 7107T-PMF will become tack free when exposed to the proper UV light radiation. The staking compound will fully post cure in exposed and shaded areas in 14 days at 25°C and 50% relative humidity, as an alternative, the post cure for the staking compound in both exposed and shaded areas may be accelerated with low to moderate heat.

KEY FEATURES AND BENEFITS

- Higher hardness version of UVISTAKE 7205LM-PMF for improved strength, toughness, and temperature resistance.
- Formulated with no diluents or non-reactive components to minimize potential for outgassing. No evidence of exudate on cured surfaces.
- Multicure mechanism for complete cure in shaded areas underneath components.
- Low Tg for good temperature cycling capability from -40°C to +100°C.
- Highly reversion resistant for good physical stability under high heat and humidity environments
- Excellent adhesion to plastic/metal components and substrates.
- Packaged in syringes for convenient dispensing. Plungers available for hand operation or pneumatic-type syringes for automated dispensing.

HANDLING INFORMATION

Work Life, after thaw @ 25°C, 5 gm mass, hrs.	> 8

Note:

1. To thaw, remove syringe from freezer and allow to warm to room temperature. Do not place in oven or microwave to thaw - this will shorten work life. Typical time to thaw 10cc syringe is approximately 15 minutes.
2. Work life adversely affected by heat and humidity.
3. Syringes of UVIBOND 7107T-PMF are shipped in dry ice. Upon receipt, transfer frozen syringes to a storage freezer @-40°C or below.

CURE SCHEDULE

U.V. Cure with Conveyor Equipment

3-4 passes under 300 W/in Fusion UV, D-bulb lamp at rate of 2 feet per min. OR 2-3 passes under 300 W/in fusion UV, D-bulb @ rate of 1 foot per min. Bulb height above coating surface should be adjusted to expose the resin system to approximately ~17.5 joules/cm² of radiation per pass at 1 foot/minute and ~12 joules/cm² of radiation per pass at 2 feet/minute. The minimum total amount of joules that needs to be achieved to fully UV-cure this product is ≥36 joules.

U.V. Cure with Spot Cure Equipment

We recommend using an EFOS Novacure or equivalent equipment with similar power generating capabilities. This system is capable of generating the same amount of energy as in cure #1. In some applications, diffusers may be necessary to insure even energy distribution and complete cure. Customer should consult Aptek Laboratories and/or equipment supplier to optimize cure for individual applications.

Postcure

After curing as indicated in steps 1 or 2 above, the staking compound can be postcured as follows:

2 hours @ 100°C

Note: 1) The above cure schedules are conservative and should be used as guidelines only. User should determine proper cure schedule based on applications requirements and properties desired.
2) Cured material exposed to excess heat and long term aging may darken in color over time. Please note that this is a natural occurrence and no adverse effects to mechanical or electrical properties take place.

TYPICAL PROPERTIES

(not for specification purposes)

CHARACTERISTICS	7107T-PMF	TEST METHOD
Color	pale yellow; translucent	Visual
Specific gravity	1.0	ASTM D-1475
Viscosity @ 25°C,cps	thixotropic paste	ASTM D-1824
Flash point, °C	>100°C	TCC
Shelf life @-40°C, or below, factory sealed containers, months	6	

CURED PHYSICAL PROPERTIES	7107T-PMF	TEST METHOD
Hardness, Durometer A	90	ASTM D-2240
Tensile strength, psi	395	ASTM D 638
Elongation at break, %	21	ASTM D-638
Young's modulus, psi	2800	ASTM D-638
Glass transition temp., °C	-55	ASTM E831-86

Thermal coefficient of expansion, in/in/C°		
alpha 1	70×10^{-6}	
alpha 2,	175×10^{-6}	ASTM E831-86
Fungus resistance	Non-nutrient	ASTM G-21
Outgassing		
TML, %	0.45	ASTM E-595
CVCM, %	0.03	

CURED ELECTRICAL PROPERTIES	**7107T-PMF**	**TEST METHOD**
Volume resistivity, @25°C, ohm-cm	5.4×10^{14}	ASTM D-257
Dielectric constant, @1KH$_z$, @25°C	3.5	ASTM D-150
Dissipation factor @1KH$_z$, @25°C	0.03	ASTM D-150
Dielectric strength, 0.003" thick film, volts/mil	>1500	ASTM D-149
Insulation resistance, ohms	1.0×10^{13}	MIL-I-46058C

SAFETY AND FIRST AID

UVIBOND 7107T-PMF is 100% solids organic polyol isocyanate/acrylate resin blend usually packaged in syringes and is thus considered safe to use when handled properly. Store at -40°C or below and keep away from flame, sparks, or other sources of ignition. Use in well-ventilated area and avoid breathing vapors. In case of eye contact, flush with fresh clean water for at least 15 minutes; for skin contact, wash thoroughly with soap and water. If swallowed, drink at least one pint of water and call a physician. Refer to Material Safety Data Sheet for more details.

Issued: 1/5/16 – mjv
Revised: 12/9/20 – jmv