APTEK LABORATORIES, INC.
ISO 9001 / AS9100 Certified

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

TECHNICAL DATA & INFORMATION

APTEK® 2100-PMF

Premixed-frozen, low modulus urethane potting compound

PRODUCT DESCRIPTION

APTEK 2100-PMF is a one component, premixed-frozen, electrically insulating urethane potting compound. It was designed for the potting of electrical/electronic components to printed circuit boards. **APTEK 2100-PMF** is a 100% solids, solvent-free system that will not form voids during cure or outgas after being fully cured.

APTEK 2100-PMF is a non-TDI based urethane system which has outstanding reversion resistance and physical stability when subjected to high heat and humidity environments. As a urethane, this system displays higher ionic purity than epoxy systems minimizing the chance of corrosion around sensitive components and circuitry.

- Premixed-frozen and packaged in syringes for convenient dispensing to circuit board
- Low modulus to minimize stress to sensitive components and ceramic substrates
- Low Tg for excellent low temperature cycling and performance
- Excellent substrate adhesion; superior to silicones

HANDLING INFORMATION

Work life in syringe after thaw @25°C, 30 gm mass, minutes	>40

- **APTEK 2100-PMF** syringes are shipped in dry ice. Upon receipt transfer frozen syringes to a storage freezer @ -65°C or below.

- To thaw remove a syringe from freezer and allow to warm to room temperature.

- Do not place in oven or microwave-this will shorten use life.

- Typical thaw time for 30cc syringe @25°C ambient is approximately 10-15 minutes.

CURE SCHEDULE*

7 days @ 25°C
OR
6 hours @ 85°C
OR
4 hours @ 100°C
OR
2½ hours @ 125°C

* Alternative cure schedules may be possible depending on application requirements.

Note: 1) As typical with urethane systems, a relaxation/stabilization period after cure of 2-4 days at room temperature is required to reach final properties.

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

(Values not to be used for specification purposes)

CHARACTERISTICS	APTEK 2100-PMF	TEST METHOD
Color	hazy/translucent	Visual
Specific gravity	0.96	ASTM D-1475
Viscosity after thaw @ 19-23°C	~20,000	ASTM D-1824
Flash point, °C	>150	ASTM D-92
Shelf life @-65°C, months in factory sealed pre-mixed frozen-syringes	6	
CURED PHYSICAL PROPERTIES	**APTEK 2100-PMF**	**TEST METHOD**
Hardness, Durometer A	50	ASTM D-2240
Lap Shear, psi	400	ASTM D-1002
Tensile Strength @ 25°C 0.058" thickness, psi	450	ASTM-D-638
Elongation, %	325	ASTM-D-638
Young's modulus @25°C, psi	750	ASTM D-412
Glass transition temp., °C	-65	ASTM E-831
Thermal coefficient of expansion, in/in/°C alpha 1	67×10^{-6}	ASTM E-831
alpha 2	220×10^{-6}	
Thermal conductivity, W/mK	0.17	COLORA
Outgassing @10^{-6} Torr		
TML, %	0.38	ASTM E-595
CVCM, %	0.03	ASTM E-595
Moisture absorption, %	0.18	ASTM D-570
Fungus resistance	Non-nutrient	ASTM G-21

CURED ELECTRICAL PROPERTIES	APTEK 2100-PMF	TEST METHOD
Volume resistivity, ohm-cm		
@ 25°C	1.0×10^{15}	ASTM D-257
@ 90°C	3.5×10^{13}	ASTM D-257
Dielectric constant, @ 1 KHz		
@25°C	3.2	ASTM D-150
@90°C	3.5	ASTM D-150
Dissipation factor @ 1 KHz		
@25°C	0.024	ASTM D-150
@90°C	0.031	ASTM D-150
Dielectric strength, volts/mil		
@ 0.005" thick	>2000	ASTM D-149
@ 0.500" thick	370	ASTM D-149

SAFETY AND FIRST AID

APTEK 2100-PMF is an unfilled polyol resin/organic isocyanate blend which is safe to handle as it is packaged in sealed syringes. There should be no need to touch the adhesive. Avoid contact with skin and eyes and use in a 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.

Revised: 2/17/20– mjv