



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2312-PMF

Premixed-frozen, electrically conductive, low modulus adhesive

PRODUCT DESCRIPTION

APTEK 2312-PMF is a one component, premixed-frozen, silver filled, electrically conductive soft paste adhesive. It is designed to bond many dissimilar substrates and dissipate device generated heat. **APTEK 2312-PMF** is a 100% solids, solvent free system that will not form voids during cure or outgas after being fully cured.

KEY FEATURES AND BENEFITS

- 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
- Also available with spacer beads for precise bond line control
- Wide temperature operating range: -50°C - +260°C in an inert atmosphere (i.e. under N₂) and -50°C – +170°C in air.

HANDLING INFORMATION

Work life in syringe after thaw @25°C, 5 cc, minutes >60

APTEK 2312-PMF syringes are shipped in dry ice. Upon receipt, transfer frozen syringes to a storage freezer @-40°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 5cc syringe @25°C ambient is approximately 15 minutes.

CURE SCHEDULE*

6 hours @ 85°C

or

3 hours @ 100°C

or

1 ½ hours @ 125°C

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

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TYPICAL PROPERTIES

(Values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>APTEK2312-PMF</u>	<u>TEST METHOD</u>
Color	Silver	Visual
Specific gravity	3.6	ASTM D-1475
Viscosity @25°C, initial cps	paste	ASTM D-1824
Flash point, °C	>200	ASTM D-92
Shelf life @-40°C, months in factory sealed pre-mixed frozen-syringes	3	
<u>CURED PHYSICAL PROPERTIES</u>	<u>APTEK 2312-PMF</u>	<u>TEST METHOD</u>
Lap shear, @25°C, Al to Al, psi	200	ASTM D-1002
Glass transition temp., °C	-60	ASTM E-831
Thermal coefficient of expansion, in/in/°C	alpha 1 54 x 10 ⁻⁶ alpha 2 244 x 10 ⁻⁶	ASTM E-831
Thermal conductivity, @25°C W/m ² K	1.75	COLORA
Outgassing @ 10 ⁶ Torr		
TML, %	0.60	ASTM E-595
CVCM, %	0.02	ASTM E-595

*Scuff sanded, IPA wiped T3-2024Al; cohesive failure

<u>CURED ELECTRICAL PROPERTIES</u>	<u>APTEK 2312-PMF</u>	<u>TEST METHOD</u>
Volume resistivity @25°C, ohm-cm	0.005	QCP-006

SAFETY AND FIRST AID

APTEK 2312-PMF is a silver filled hybrid polymer 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.

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