

# 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 N<sub>2</sub>) 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 microwavethis 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

#### - DISCLAIMER NOTICE -

All statements, technical data, and recommendations expressed herein are based on tests believed to be reliable and accurate. However, APTEK LABORATORIES, INC. gives no warranty, expressed or implied, regarding the accuracy of this information. It is intended that the buyer and user of these products shall determine the suitability of the information provided for his specific application, and is responsible for its selection.

<sup>\*</sup>Alternative cure schedules may be possible depending on application requirements.

#### **TYPICAL PROPERTIES**

(Values not to be used for specification purposes)

<u>CHARACTERISTICS</u>		APTEK2312-PMF	TEST METHOD
Color		Silver	Visual
Specific gravity		3.3	ASTM D-1475
Viscosity @25°C, initial cps		Smooth paste	ASTM D-1824
Flash point, °C		>200	ASTM D-92
Shelf life @-40°C, months in factory sealed pre-mixed frozen-syringes		3	
CURED PHYSICAL PROPERTIES		APTEK 2312-PMF	TEST METHOD
Lap shear, @25°C, Al to Al, psi		200	ASTM D-1002
Glass transition temp., °C		-60	ASTM E-831
Thermal coefficient of in/in/°C	expansion, alpha 1 alpha 2	54 x 10 <sup>-6</sup> 244 x 10 <sup>-6</sup>	ASTM E-831
Thermal conductivity, @25°C W/m°K		3.0	ASTM C-518
Outgassing @ 10 <sup>6</sup> Torr TML, %		0.60	ASTM E-595
CVCM, %		0.02	ASTM E-595
+0 %	170 000 (4)	**	

CURED ELECTRICAL PROPERTIES	APTEK 2312-PMF	TEST METHOD
Volume resistivity		
@25°C, ohm-cm	0.002	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 <u>no</u> 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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**APTEK**<sup>®</sup> is a registered trademark of Aptek Laboratories, Inc.

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