



# APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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

## TECHNICAL DATA & INFORMATION

### DIS-A-PASTE® 2310-PMF

Premixed-frozen, snap-cure, thermally conductive, reworkable adhesive/encapsulant

### PRODUCT DESCRIPTION

**DIS-A-PASTE 2310-PMF** is a one component, premixed-frozen, mineral-filled, electrically insulating compliant polymer paste adhesive. It is designed to bond many dissimilar substrates and dissipate device generated heat. **DIS-A-PASTE 2310-PMF** is a 100% solids, solvent free system that will not form voids during cure or outgas after being fully cured.

**DIS-A-PASTE 2310-PMF** has excellent reversion resistance and physical stability when subjected to high heat and humidity environments. This system displays higher ionic purity than epoxy systems minimizing the possibility of corrosion on components and circuitry.

### KEY FEATURES AND BENEFITS

- Production-oriented, snap-cure technology for surface mount applications - allows cure during solder reflow operation.
- High thixotropy/"tack" strength - holds components with minimal "Z" axis movement during cure
- Stable viscosity for over 4 hours at RT - ideal for robotics
- Reworkable for repair applications - save costly devices/PC boards
- Low Tg (<-70°C) for excellent low temperature cycling and performance with minimal stress
- Excellent substrate adhesion; superior to silicones: no primer required
- Bonds **DAT-A-THERM™** thermally conductive low modulus films to devices and substrates without loss of thermal conductivity
- **DIS-A-PASTE 2310-PMF** also available with various thicknesses of internal bond-line spacers

### HANDLING INFORMATION

1. Work life @25°C in 5cc syringe (or smaller) after thaw: >4 hrs with < 25% viscosity increase.
2. **DIS-A-PASTE 2310-PMF** syringes are shipped in dry ice. Upon receipt, transfer frozen syringes to a storage freezer @-40°C or below.
3. To thaw remove from freezer and allow to warm to room temperature. Do not place in oven or microwave-this will shorten use life.
4. Typical thaw time for 5cc syringe (or smaller) @25°C ambient is approximately 15-30 minutes.

#### **- 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.

APTEK LABORATORIES, INC. shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or misuse of these products, or of the information given in these data bulletins. Purchasers assume all risk and liability whatsoever in connection with the use of these products and this information.

**CURE SCHEDULE****For adhesive applications (5-10 mils thickness):**

- Through solder reflow process: 30 secs @260°C in conjunction with typical ramp-up and ramp-down oven profiles
- For air-circulating oven (ACO) cures:

<u>Temperature, °C</u>	<u>Cure time at temperature, min.</u>
225	3
200	6
150	15
125	30
100	60
85	120
65	360

## Notes:

1. Cure schedules above are valid when parts/substrates to be bonded and oven/chamber are at the required cure temperature.
2. The above cure schedules were determined by the achievement of specific physical property values i.e. optimum lap shear strength for adhesive applications and ultimate hardness for encapsulant/potting applications. These schedules are conservative and should be used as guidelines. Achievement of the application requirements/properties should be the determining factor in the selection of cure schedule.

**TYPICAL PROPERTIES**

(Values not to be used for specification purposes)

<b><u>CHARACTERISTICS</u></b>	<b><u>DIS-A-PASTE 2310-PMF</u></b>	<b><u>TEST METHOD</u></b>
Color	off-white	Visual
Specific gravity	2.0	ASTM D-1475
Viscosity @25°C, initial cps	thixotropic paste	ASTM D-1824
Flash point, °C	>200	ASTM D-92
Shelf life @-40°C, months factory sealed, pre-mixed frozen-syringes	6	

**CURED PHYSICAL PROPERTIES****DIS-A-PASTE 2310-PMF****TEST METHOD**

NOTE: Tests performed on material cured for 45 minutes @125°C except for lap shear test which was cured for 30 minutes @125°C

Hardness, Durometer A	80	ASTM D-2240
Lap shear, @25°C, Al to Al, psi	360	ASTM D-1002
Tensile strength, psi	350	ASTM D-412
Elongation, %	70	ASTM D-412
Youngs modulus, psi	@55°C 550 @25°C 650 @-60°C 1650	ASTM D-412 ASTM D-412 ASTM D-412
Glass transition temp., °C	-72	Perkin Elmer TM-2
Thermal coefficient of expansion, in/in/C	alpha 1 alpha 2	Perkin Elmer TM-2 Perkin Elmer TM-2
Thermal conductivity, @25°C W/m°K	0.84	Colora
Outgassing @10 <sup>-6</sup> Torr	TML, % CVCM	ASTM E-595 ASTM E-595
	0.51 0.04	

**CURED ELECTRICAL PROPERTIES****DIS-A-PASTE 2310-PMF****TEST METHOD**

Volume resistivity @25°C, ohm-cm	1.0 x 10 <sup>15</sup>	ASTM D-257
Dissipation factor (D)/Dielectric constant (K) @25°C, 100 KHz	4.4/0.013	ASTM D-150
Dielectric strength, 0.500" thick, volts/mil	360	ASTM D-149

**SAFETY AND FIRST AID**

**DIS-A-PASTE 2310-PMF** is a mineral-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 ingested, drink at least one pint of water and call a physician. Refer to Material Safety Data Sheet for more details.

Revised 11/18/09 - di

Issued 02/16/1998

**APTEK**® is a registered trademark of Aptek Laboratories, Inc.

**DIS-A-PASTE**® is a registered trademark of Aptek Laboratories, Inc.

**DAT-A-Therm**™ is a trademark of Aptek Laboratories, Inc.