



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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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.

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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)

<u>CHARACTERISTICS</u>	<u>DIS-A-PASTE 2310-PMF</u>	<u>TEST METHOD</u>
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	

<u>CURED PHYSICAL PROPERTIES</u>	<u>DIS-A-PASTE 2310-PMF</u>	<u>TEST METHOD</u>
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	ASTM E-831
Thermal coefficient of expansion, in/in/C	alpha 1 alpha 2	ASTM E-831 ASTM E-831
Thermal conductivity, @25°C W/m ² K	0.84	ASTM C-518-04 ASTM E-1530-06
Outgassing @10 ⁻⁶ Torr	TML, % CVCM	ASTM E-595 ASTM E-595

<u>CURED ELECTRICAL PROPERTIES</u>	<u>DIS-A-PASTE 2310-PMF</u>	<u>TEST METHOD</u>
Volume resistivity @25°C, ohm-cm	1.0 x 10 ¹⁵	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.

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