



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2100ESD-A/B

Low-modulus, urethane, ESD, staking-compound/adhesive

PRODUCT DESCRIPTION

APTEK 2100ESD-A/B is a carbon-filled, thixotropic, two-component, electrically-conductive, flexible, urethane staking-compound/adhesive designed to dissipate an electrostatic charge.

KEY FEATURES AND BENEFITS

- Excellent reversion resistance for good physical stability under high heat and humidity environments
- Tg BELOW -60°C for excellent low temperature cycling, storage and performance
- Excellent substrate adhesion; superior to silicones
- Non-TDI based for safety

HANDLING INFORMATION

Mix ratio, parts by weight: 100 (2100ESD-A) / 17 (2100ESD-B)

Work life, 50 gm mass, @ 25°C, 50% RH, mins: 40

Note: Work life will be affected by temperature and humidity

Handling Notes:

- Prior to use, examine Part B bottle for crystallization or formation of an insoluble white precipitate which is a solid dimer of the liquid Part B. The precipitate is not harmful; however follow instructions listed below for best results

- DO NOT SHAKE BOTTLE

- Place unopened Part B bottles into an air circulating oven at 45-60°C until clear amber to slightly hazy liquid is evident (white precipitate layer may also be present).

- Carefully remove bottles from oven without disturbing contents. If liquid contains gelled material - DO NOT USE! To use Part B, decant clear liquid out of bottle without disturbing the precipitate. Excess Part B has been packaged to insure sufficient supply of liquid.

- Use entire bottle of Part B for each application if possible. Unused portion must be blanketed with dry nitrogen or argon and resealed to avoid moisture contamination.

- Store at 25°-30°C @ <50% RH

- DISCLAIMER NOTICE -

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MIXING

Weigh 100 parts of APTEK 2100ESD Part A into a clean dry glass, metal, or plastic container and then add 17 parts of APTEK 2100ESD Part B. Machine mix on slow speed or hand stir with glass or metal stirrer until complete and thorough blending is achieved. Care should be taken to avoid any source of moisture contamination or air entrapment during mix.

Note:

For best results and a void-free mixture, vacuum mixture at less than 10 mm Hg until break and then continue to hold vacuum for another minute after break. This material is highly thixotropic, so a clear rise/fall phenomenon may not be evident; rather, the material will rise and then stop rising and may slowly fall. Once the material stops rising and starts to slowly fall, this can be considered the "break". Vacuum another minute after this point.

CURE SCHEDULE

7 days @ 25°C

-or-

6 hours @ 85°C

-or-

4 hours @ 100°C

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>2100ESD-A</u>	<u>2100ESD-B</u>	<u>TEST METHOD</u>
Color	Black	Pale yellow to amber	Visual
Specific gravity	0.95	1.22	ASTM D-1475
Viscosity @ 20°C, cps	Thixotropic paste	55	ASTM D-1824
Flash point, °C	>200	>150	ASTM D-92
Shelf life @ 25°C, months factory sealed containers	6	6	

Notes: Shelf life may be reduced once containers are opened, and material is exposed to air and moisture. To preserve maximum use life, blanket the contents of the containers with dry nitrogen or argon before resealing.

<u>CURED PHYSICAL PROPERTIES</u>	<u>2100ESD-A/B</u>	<u>TEST METHOD</u>
Hardness, Durometer A	68	ASTM D-2240
Lap shear strength, psi Al to al panel, 60 grit sanded at 1" overlap	750	ASTM D-1002
Glass transition temp., °C	-65	ASTM E-831
Thermal coefficient of expansion, in/in/°C	67 x 10 ⁻⁶ 220 x 10 ⁻⁶	ASTM E-831
	alpha 1	
	alpha 2	

Outgassing @ 10 ⁻⁶ Torr		
TML, %	0.18	ASTM-E-595
CVCM, %	0.02	ASTM-E-595
Fungus resistance	non-nutrient	ASTM-G-21

<u>CURED ELECTRICAL PROPERTIES</u> (5 mil thick film at 10V bias)	<u>2100ESD-A/B</u>	<u>TEST METHOD</u>
Surface resistivity @ 25°C, ohms/square	1.0 x 10 ⁶	ETS Meter 872A
Volume resistivity @ 25C, ohm-cm	3.0 x 10 ³	QCP-006

SAFETY AND FIRST AID

APTEK 2100ESD-A is a carbon-filled polyol resin system that is safe to handle when used properly. It is judged to be low in toxicity and to be rated as a slight skin irritant. 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 physician. Refer to Material Safety Data Sheet for more details.

APTEK 2100ESD-B is an organic isocyanate which may cause severe eye and skin irritation with direct contact. Inhalation of vapors may result in breathlessness, severe coughing, chest discomfort, and irritation of mucous membranes. Avoid skin and eye contact and use in a well-ventilated, hooded area. In case of eye contact, flush profusely with fresh clean water and contact a physician. For skin contact, wash thoroughly with soap and water. If inhaled, move subject to fresh air and provide water to drink. If swallowed, dilute with at least one pint water and contact physician immediately. Refer to Material Safety Data Sheet for more details.

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