



# APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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## TECHNICAL DATA & INFORMATION

### APTEK® 2205-A/B

Low modulus urethane staking compound  
Pre-measured kits

### PRODUCT DESCRIPTION

**APTEK 2205-A/B** is a thixotropic, two-component, electrically insulating, low modulus urethane system designed for the staking of electrical/electronic components to printed circuit boards. Although **APTEK 2205-A/B** is capable of achieving full cure at room temperature, a short term exposure to moderate heat will greatly reduce processing time and optimize cured properties.

### KEY FEATURES AND BENEFITS

- Provided in easy-to-use pre-measured kits to minimize handling and processing
- Good wet strength holds components in place allowing for the movement of the circuit boards during processing
- 100% solids, solvent free system that will not form voids during cure or service life
- Low Tg for excellent low-temperature cycling and performance
- Very good substrate adhesion; superior to silicones

### HANDLING INFORMATION

Work life, @ 25°C, 30 gm, 50% RH, minutes:		12-18
Tack free time, 1 gm "bead"	@ 25°C	2-4 hours
	@ 85°C	10 minutes

#### Notes:

APTEK 2205-B should be stored in tightly closed, factory sealed containers at a temperature of 22-32°C. At this temperature the product will remain liquid. Crystallization, cloudiness, or formation of an insoluble white precipitate which is the solid dimer of the liquid Part B may occur at temperatures below 20°C. The precipitate is not harmful. Place unopened Part B bottles into circulating oven at 45-60°C until clear amber liquid is evident (white precipitate layer may also be present). Carefully remove bottles from oven without disturbing contents. Decant clear liquid out of bottle without disturbing the precipitate.

#### - DISCLAIMER NOTICE -

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**MIXING**

There is no need for a scale or balance because Aptek 2205-A/B is supplied in pre-weighed kits. Drain entire contents of Part B bottle into Part A container. Mix by hand with clean, dry metal spatula until uniform. Do not create bubbles during mixing.

Care should be taken to avoid any source of moisture contamination or air entrapment during mix. Relative humidity during mixing and processing should be maintained below 50%. For best results, and a void free bond line, vacuum mixture at less than 10 mm Hg for 3-5 minutes after "break".

**Due to the type of fillers in this product, specks may be visible by examination under the microscope.**

**CURE SCHEDULE**

7 days @ 25°C  
or  
10 minutes @85°C to  
tack free + 7 days @ 25°C  
or  
2 hours @ 85°C

## Notes:

- 1) As typical with urethane systems, a relaxation/stabilization period of 2-4 days at RT after cure is required before testing, service, or use.
- 2) Cured material exposed to excess heat and long term aging may darken in color over time. Please note that this is a natural occurrence and no adverse effects to mechanical or electrical properties take place.

For optimum properties, it is best to cure APTEK 2205-A/B using one of the heat methods recommended above.

**TYPICAL PROPERTIES**

(Values not to be used for specification purposes)

<b><u>CHARACTERISTIC</u></b>	<b><u>2205-A</u></b>	<b><u>2205-B</u></b>	<b><u>TEST METHOD</u></b>
Color	Pale white – pale yellow	Pale yellow to amber	Visual
Clarity	Translucent	Clear to hazy	Visual
Specific gravity	0.99	1.21	ASTM D-1475
Viscosity @25°C,cps	Smooth, thixo-paste	88	ASTM D-1824
Flash point, °C	>150	>125	ASTM D-92
Shelf life @ 25°C, months in factory sealed containers	6	6	

<b><u>CURED PHYSICAL PROPERTIES</u></b>	<b><u>2205-A/B</u></b>	<b><u>TEST METHOD</u></b>
Hardness, Durometer A	65	ASTM D-2240
Tensile strength, psi	875	ASTM D-412
Elongation, %	265	ASTM D-412
Glass transition temp.,°C	-65	ASTM E-831
Thermal coefficient of expansion,		

in/in/°C	alpha 1	$79 \times 10^{-6}$	ASTM E-831
	alpha 2	$185 \times 10^{-6}$	ASTM E-831
<b><u>CURED ELECTRICAL PROPERTIES</u></b>		<b><u>2205-A/B</u></b>	<b><u>TEST METHOD</u></b>
Volume resistivity @25°C, ohm-cm		$1.3 \times 10^{15}$	ASTM D-257
Dissipation factor (D)/Dielectric constant (K) @25°C, 1 KHz		0.030/3.5	ASTM D-150

### **SAFETY AND FIRST AID**

APTEK 2205-A is a filled polyol resin 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 a physician. Refer to Material Safety Data Sheet for more details.

APTEK 2205-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 for eye contact, flush profusely with fresh clean water and contact physician. For skin contact, wash thoroughly with soap and water. If inhaled, move subject to fresh air and provide fresh water to drink. If swallowed, dilute with at least one pint of water and contact physician immediately. Refer to Material Safety Data Sheet for more details.

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