



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2125-A/B

- Low modulus urethane
- High purity
- Low outgassing
- 4/1 PBV dual cartridge kits

PRODUCT DESCRIPTION

APTEK 2125-A/B is a two component, lightweight, electrically insulating urethane system designed for the potting and encapsulation of electronic components, substrates, and active chips. This is 100% solids, solvent free system that will not form voids during cure or service life.

APTEK 2125-A/B is a non-TDI based urethane system which has outstanding reversion resistance and physical stability when subjected to high heat and humidity environment. As a urethane, this system displays higher ionic purity than epoxy systems minimizing the chance of corrosion around sensitive components and circuitry.

KEY FEATURES AND BENEFITS

- Low modulus/high elongation to minimize stress to sensitive components and ceramic substrates.
- Low Tg for excellent low temperature cycling and performance
- Wide operating temperature range (-65°C to 100°C) for versatility.
- Excellent substrate adhesion; superior to silicones
- Exceeds NASA outgassing requirements for high vacuum environments
- Low density for aerospace applications

- DISCLAIMER NOTICE -

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HANDLING INFORMATION

Mix ratio, parts by volume: 4 (2125-A) / 1 (2125-B)

Work life, @ 25°C, 50 gm. mass, minutes >60

Store dual cartridge kits @ 25°C or below

Viscosity vs time profile in a 100 ml taral container

Note: 200 ml dual cartridge was pre-conditioned in air circulating oven @ 200°F (93.33°C) for one hour prior to dispensing into the taral container.

<u>Time</u>	<u>Viscosity(cps)*</u>	<u>Temperature</u>
Initial	15,000	70°C
3 minutes	16,000	69°C
6 minutes	17,000	68°C
9 minutes	18,500	67°C
12 minutes	22,500	63°C
15 minutes	27,500	61°C
20 minutes	36,500	51°C

* Brookfield RVT viscometer, spindle #5, speed 10 rpm

CURE SCHEDULE

8 hours @ 80°C

Note:

As typical with urethane systems, a relaxation/stabilization period of 2-4 days at room temperature after heat cure is recommended before testing or service. In order to pass outgassing requirements up to 7 days at room temperature after heat cure may be necessary. User to make this determination.

TYPICAL PROPERTIES

(Values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>2125-A</u>	<u>2125-B</u>	<u>TEST METHOD</u>
Color	Off-white	Off-white	Visual
Specific gravity	0.61	0.82	ASTM D-1475
Flash point, °C	>200	>150	ASTM D-92
Shelf Life @ 25°C months, factory sealed containers	3	3	

<u>CURED PHYSICAL PROPERTIES</u>	<u>APTEK 2125-A/B</u>	<u>TEST METHOD</u>
Hardness, Shore A	65	ASTM D-2240

Specific Gravity	0.67	ASTM D-1475
Lap shear, Al to Al, psi	200	ASTM D-1002
Glass transition temp., (Tg), °C	-50	ASTM E-831
Coefficient of thermal expansion, in/in/°C		ASTM E-831
alpha 1	65×10^{-6}	ASTM E-831
alpha 2	120×10^{-6}	
Outgassing @ 10^{-6} Torr		
TML, %	<0.52	ASTM E-595
CVCM, %	<0.008	ASTM E-595
Moisture absorption, %	0.20	ASTM D-570
Fungus resistance	Non-nutrient	ASTM G-21

CURED ELECTRICAL PROPERTIES**APTEK 2125 A/B****TEST METHOD**

Volume resistivity, ohm-cm @ 25°C	$>1.0 \times 10^{15}$	ASTM D-257
Dielectric constant, @ 1 KHz @25°C	≤ 3.0	ASTM D-150
Dielectric constant, @ 8 GHz @25°C	2.08	HP 8757A
Dissipation factor @ 1 KHz @25°C	≤ 0.03	ASTM D-150
Dielectric strength, volts/mil @ 0.500" thick	>325	ASTM D-149

SAFETY AND FIRST AID

APTEK 2125-A is borosilicate-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 physician. Refer to Material Safety Data Sheet for more details.

APTEK 2125-B is a borosilicate-filled 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 well ventilated, hooded area. In case of 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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