



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2506-A/B

Room temperature curing, low modulus urethane conformal coating

PRODUCT DESCRIPTION

APTEK 2506-A/B is an unfilled, two component, electrically insulating, transparent, flexible urethane coating system designed for the encapsulation and protection of electrical/electronic components mounted on printed circuit boards. For coating applications that require toughness, this system provides a combination of high flexibility and good tensile strength/elongation characteristics.

KEY FEATURES AND BENEFITS

- Capable of curing at RT; rapid cure with low/moderate heat cycle
- Non-TDI based for safety
- Excellent reversion resistance for good physical stability under high heat and humidity environments
- Tg BELOW -55°C for excellent low temperature cycling, storage and performance
- Excellent substrate adhesion; superior to silicones
- Fluoresces under black-light (UV) to facilitate QC inspection of coating coverage
- Available in pre-measured kits to minimize handling

HANDLING INFORMATION

Mix ratio, parts by weight: 6 (2506-A) / 1 (2506-B)

Recommended weighing tolerance: ± 1% on each part

Work life, 100 gm mass, @ 25°C, 50% RH, mins: 20 - 30

Notes:

- Work life will be affected by temperature, humidity and degree of solvent evaporation. For best results keep mixture in a closed container.
- Work life can be greatly extended by additions of thinner and/or periodical replenishment with freshly mixed 2506-A/B.

Handling Notes:

- To reduce mixed viscosity dilute A/B mixture with APTEK thinner or reagent grade toluene as needed.
- APTEK 2506-B should be stored in tightly closed, factory sealed containers at a temperature of 25-35°C. At this temperature the product will remain liquid.

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- 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; however, **do not shake the bottle**. Place unopened Part B bottles into an air 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 with- out disturbing the precipitate.
- Use entire bottle of Part B for each application if possible. Unused portion must be blanketed with dry N₂ and resealed to avoid moisture contamination.
- For **pre-weighed** kit, drain entire contents of Part B bottle into Part A container. Reseal Part A container, then shake vigorously for 15-30 seconds. Allow bubbles/foam to surface and break prior to use.

MIXING

Weigh 6 parts of APTEK 2506 Part A into a clean dry glass, metal, or plastic container and then add 1 part of APTEK 2506 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 bubble-free coating, vacuum mixture at less than 10 mm Hg for no more than 1 minute after "break" to avoid boiling the solvent from the mixture.

CURE SCHEDULE

1 hour @ 65°C*
or
½ hour @ 85°C*
or
7 days @ RT

* It is recommended that coated substrates are allowed to air-dry 30-60 minutes at RT prior to heat cure to ensure time for solvent evaporation.

Note: As typical with urethane systems, a relaxation/stabilization period of 2-4 days after cure is required before testing, service, or use.

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>2506-A</u>	<u>2506-B</u>	<u>TEST METHOD</u>
Color	Blue	Amber	Visual
Specific gravity	0.90	1.22	ASTM D-1475
Viscosity @ 20°C, cps	90	55	ASTM D-1824
Flash point, °C	10	200	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>2506-A/B</u>	<u>TEST METHOD</u>
Hardness, Durometer A	88	ASTM D-2240
Tensile strength, psi	1800	ASTM D-412
Elongation, %	275	ASTM D-412
Glass transition temp., °C	-60	ASTM E-831
Thermal coefficient of expansion, in/in/°C		
alpha 1	90.5×10^{-6}	ASTM E-831
alpha 2	197×10^{-6}	ASTM E-831
<u>CURED ELECTRICAL PROPERTIES</u>	<u>2506-A/B</u>	<u>TEST METHOD</u>
Volume resistivity @ 25°C, ohm-cm	8.5×10^{15}	ASTM D-257
Dielectric constant, @ 25°C, @ 1 KHz	3.4	ASTM D-150
Dissipation factor, @ 25°C, @ 1KHz	0.024	ASTM D-150
Dielectric strength, 0.002" thick, volts/mil	>1500	ASTM D-149

SAFETY AND FIRST AID

APTEK 2506-A is an unfilled polyol resin containing solvent and is thus considered a flammable liquid and should be treated with caution. Avoid storage temperatures above 35°C and keep away from flame, sparks, or other sources of ignition. Use in 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 2506-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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