



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

28570 Livingston Avenue, Valencia, CA 91355-4171 • (661) 257-1677 FAX (661) 257-8939

TECHNICAL DATA & INFORMATION

APTEK® 6110-A/B
Optoelectronic Encapsulant

PRODUCT DESCRIPTION

APTEK 6110-A/B is a two component, unfilled, water clear, tough system designed for the encapsulation of LED chips in optoelectronic devices. **APTEK 6110-A/B** provides excellent environmental protection and when casted becomes the lens portion of the device and displays excellent clarity and light transmissivity. **APTEK 6110-A/B** was formulated to display minimal attack to clear plastic cases - especially polysulphone and polycarbonate.

KEY FEATURES AND BENEFITS

- Low viscosity for potting of small device casings
- Sufficient surface tension for blob-top applications on ceramic sensors
- Minimum discoloration with prolonged heat aging up to 105°C

HANDLING INFORMATION

Mix ratio, parts by weight: 100 (APTEK 6110-A)/35 (APTEK 6110-B)

Work life*, 25°C, 45% RH, 100 gms, hrs. >3
*adversely affected by heat and humidity

Index of refraction, mixed wet @ 25°C 1.54

Handling Notes:

1. Visually inspect containers of Part A before use. It is a very pure material may crystallize upon prolonged storage below 30-35°C. If crystals are present, place the container into 60-70°C air circulating oven for 1 to 4 hours until material is clear liquid. Allow to cool to 25-30°C before use. DO NOT FORCE COOL as this may cause recrystallization.
2. Part B is moisture sensitive and will react with atmospheric moisture to form a white "crystal-like" solid, which will not melt when heated. To avoid this phenomenon, reseal container immediately after use and, if possible, purge with dry nitrogen or argon before resealing. This purging step and immediate resealing will help to minimize the white "crystal-like" formation.
3. For best results, transfer degassed A/B mixtures to syringes for dispensing. Syringes may be frozen and stored for up to one month at -40°C or below for future use.

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MIXING

Weigh 100 parts by weight of APTEK 6110 Part A into a clean, dry, glass, metal or plastic container and then add 35 parts of APTEK 6110 Part B. Machine mix at 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. Mixture may be warmed to 30°C maximum to facilitate degassing and handling.

Note: For best results and void free castings vacuum mixture (25-30°C) at less than 15mm Hg for 1-2 minutes after break. Stop vacuuming if when material starts to boil.

CURE SCHEDULE*

2 hrs @ 60°C + 2 hrs @ 125°C

*This schedule is conservative, however, the user should determine the proper cure schedule for individual application requirements.

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>APTEK 6110-A</u>	<u>APTEK 6110-B</u>	<u>TEST METHOD</u>
Clarity	Clear to hazy/crystallized	Clear to hazy	Visual
Color	Pale yellow to pale blue	Pale yellow/amber to pale green/gray	Visual
Specific gravity	1.15	0.94	ASTM D-1475
Viscosity @ 25°C, cps spindle/speed, rpm	3400 (#3/10)	65 (#2/100)	ASTM D-1824
Flash point, °C	>200	>100	ASTM D-92
Shelf life @ 25°C, months factory sealed containers	12	12	

CURED PHYSICAL PROPERTIES**APTEK 6110-A/B****TEST METHOD**

Hardness, durometer D	82	ASTM D-2240
Glass transition temp., °C	115	PERKIN ELMER TMS-2
Thermal coefficients of expansion, in/in/°C		
alpha 1	74	PERKIN ELMER TMS-2
alpha 2	189	PERKIN ELMER TMS-2

CURED ELECTRICAL PROPERTIES**APTEK 6110-A/B****TEST METHOD**

Volume resistivity @25°C, ohm-cm	>1 x 10 ¹⁵	ASTM D-257
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SAFETY AND FIRST AID

APTEK 6110-A is safe to handle when used properly. Contact with skin or eyes can cause irritation and possible allergic skin reaction with prolonged or repeated use. 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 6110-B is safe to handle when used properly. It may cause eye irritation, possible eye damage, skin irritation and possible allergic skin reaction with direct contact. Prolonged inhalation of vapors may result in breathlessness, coughing, and irritation of mucous membranes. Avoid skin and eye contact and use in a well-ventilated area. In case of eye contact, flush profusely with fresh clean water for 15 minutes and contact a 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.

FOR INDUSTRIAL USE ONLY

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