APTEK LABORATORIES, INC.
ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 6111-A/B

Optoelectronic Encapsulant

PRODUCT DESCRIPTION

APTEK 6111-A/B is a two component, unfilled, dark red, rigid system designed for the encapsulation of LED chips in OPTO devices. **APTEK6111-A/B** provides excellent environmental protection and when casted becomes the lens portion of the device designed to be transparent to IR light while blocking visible light and therefore appears black when cast in mass. **APTEK 6111-A/B** was formulated to display minimal attack to plastic molds/cases - especially polysulphone and polycarbonate.

KEY FEATURES AND BENEFITS

- High purity system to minimize potential of corrosion to die and lead frame surfaces
- Minimum discoloration with prolonged heat aging to 120°C

HANDLING INFORMATION

Mix ratio, parts by weight:	100 (APTEK 6111-A)/35 (APTEK 6111-B)
Work life*, 25°C, 45% RH, 500 gms, hrs. *adversely affected by heat and humidity	>3

Handling Notes:

1. Visually inspect containers of Part A before use. It is a very pure material may crystallize upon prolonged storage below 20°C. If crystals are present, place the container into 60-70°C air circulating oven for 1 to 4 hours until material is totally liquid. Allow to cool to 30-35°C before use. DO NOT FORCE COOL as this may cause recrystallization.

2. Part B is moisture sensitive. Reseal opened containers immediately after use. If possible, purge with dry nitrogen or argon before resealing to prolong shelf life.

MIXING

Weigh 100 parts by weight of APTEK 6111 Part A into a clean, dry, glass, metal or plastic container and then add 35 parts of APTEK 6111 Part B. Machine mix at slow speed or hand stir with glass or metal stirrer until complete and thorough blending in achieved. Care should be taken to avoid any source of moisture contamination or air entrapment during mix. Mixture may be warmed to 35°C maximum to facilitate degassing and handling.

Note: For best results and void free castings vacuum mixture (25-35°C) at less than 15mm Hg for 3-5 minutes after break. Stop vacuuming if when material starts to boil.

CURE SCHEDULE*

2 hrs @ 65°C to gel
+
2 -3 hrs. @ 125°C

*The user should determine the proper cure schedule for individual application requirements. As a guideline increased cure times will improve heat/humidity/chemical resistance without adversely effecting physical and electrical properties.

TYPICAL PROPERTIES

(values not to be used for specification purposes)

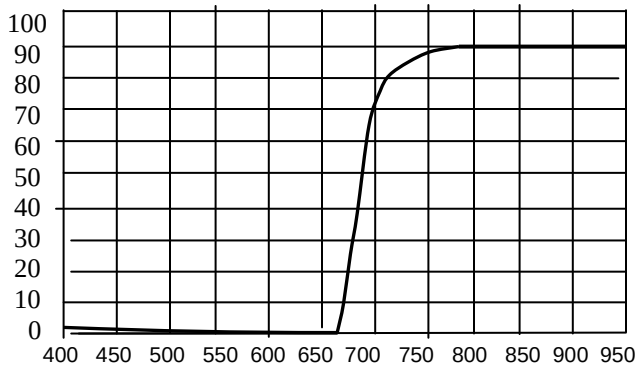
CHARACTERISTICS	APTEK 6111-A	APTEK 6111-B	TEST METHOD
Color	dark red	water clear	Visual
Specific gravity	1.15	0.95	ASTM D-1475
Viscosity @ 25°C, cps	4500	120	ASTM D-1824
Flash point, °C	>200	>100	ASTM D-92
Shelf life @ 25°C, months factory sealed containers	12	12	

CURED PHYSICAL PROPERTIES	APTEK 6111-A/B	TEST METHOD
Hardness, durometer D	86	ASTM D-2240
Glass transition temp., °C	135	ASTM E-831
alpha 1, in/in/°C x 10^{-6}	77	
alpha 2, in/in/°C x 10^{-6}	186	

CURED ELECTRICAL PROPERTIES	APTEK 6111-A/B	TEST METHOD
Volume resistivity @25°C, ohm-cm	>1 x 10^{15}	ASTM D-257

% Transmittance vs. Wavelength

IR TRANSMITTING CASTING EPOXY
TRANSMISSI ON



WAVELENGTH (nm)

—— .080" THICK SECTION

SAFETY AND FIRST AID

APTEK 6111-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. Incase 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 6111-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

Current Revision: 10/10/17 – dh
Issued: 09/23/09 - di