



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 6103-A/B

Optoelectronic Encapsulant for IR Devices

PRODUCT DESCRIPTION

APTEK 6103-A/B is a two component, unfilled, deep red, rigid system designed for the encapsulation of IR LED chips in OPTO devices. **APTEK 6103-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 out visible light and therefore appears black when cast in mass.

KEY FEATURES AND BENEFITS

- Fast gel time/good hot strength for fast demold time
- High purity system to minimize potential of corrosion to die and lead frame surfaces.
- Low mixed viscosity for easy degassing and minimum bubble entrapment.

HANDLING INFORMATION

Mix ratio, parts by weight: 100 (6103-A) / 100 (6103-B)

Work life, 25°C, 45% RH, 500 gms, hrs. >6
(adversely affected by heat and humidity)

Gel time, 10 gms, 120°C, mins. 5-10

Handling Notes

- Visually inspect containers of Part B before use. It is a very pure material and 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.
- 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 6103 Part A into a clean, dry, glass, metal or plastic container and then add 100 parts of APTEK 6103 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 35°C to facilitate degassing and handling.

Note: For best results and void free castings vacuum mixture at less than 15mm Hg for 5 minutes. Stop vacuuming when material starts to boil.

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CURE SCHEDULES*

Discretes:

Demold time 60 mins. @ 125°C

Post cure 4 hrs. @ 125°C

Displays:

Cure time 12 hrs. @ 115°C

*Note: Above schedules were determined by tracking the Tg vs time data at various temperatures. These schedules represent a condition where the Tg of the system has remained constant for at least 35% of the time at each respective temperature.

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

TYPICAL PROPERTIES

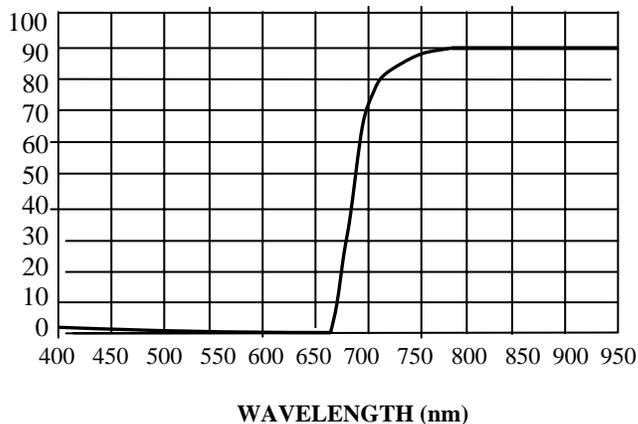
(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>6103-A</u>	<u>6103-B</u>	<u>TEST METHOD</u>
Color	deep red	clear to pale yellow	Visual
Specific gravity	1.16	1.20	ASTM D-1475
Viscosity @ 25°C, cps spindle/speed, rpm (Brookfield RVT)	≤3000 #3/10	≤500 #2/50	ASTM D-1824
Flash point, °C	>200	>150	ASTM D-92
Shelf life, months @ 25°C, factory sealed containers	12	12	

<u>CURED PHYSICAL PROPERTIES</u>	<u>APTEK 6103-A/B</u>	<u>TEST METHOD</u>
Hardness, durometer D	87	ASTM D-2240
Glass transition temp., °C	130	ASTM E-831
Thermal coefficient of expansion, in/in/°C	alpha 1 72 x 10 ⁻⁶ alpha 2 188 x 10 ⁻⁶	ASTM E-831 ASTM E-831

% Transmittance vs. Wavelength

**IR TRANSMITTING CASTING EPOXY
TRANSMISSION**



— .080" THICK SECTION

CURED ELECTRICAL PROPERTIES

APTEK 6103-A/B

TEST METHOD

Volume resistivity
@ 25°C, ohm-cm

5.0×10^{15}

ASTM D-257

Dissipation factor/dielectric constant
@ 25°C, 1 KHz

0.010/3.1

ASTM D-150

SAFETY AND FIRST AID

APTEK 6103-A is safe to use when handled properly. Contact with skin or eyes may 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 6103-B is safe to use when handled 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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