



# APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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## TECHNICAL DATA & INFORMATION

### PRELIMINARY

#### APTEK® 2205CG-A/B (Cartridge Grade)

- Low modulus, low outgassing urethane
- Electrically insulative adhesive/staking compound
- Room temperature Cure

#### PRODUCT DESCRIPTION

**APTEK 2205CG-A/B** is a two component, translucent, low modulus, thixotropic, urethane adhesive displaying flexibility and good physical strength properties.

**APTEK 2205CG-A/B** has been designed to fully cure at room temperature and can be accelerated with a brief low temperature cure. This system has been specifically designed to adhere to a wide variety of substrates such as metals, glass, plastics, gemstones, etc.

#### KEY FEATURES AND BENEFITS

- Packaged in convenient 4/1 PBV dual cartridge dispenser kits for easy handling
- Excellent impact resistance and temp cycle capabilities
- Smooth thixotropic paste with minimal sag on vertical surfaces

#### HANDLING INFORMATION

Mix ratio, parts by volume 4 (2205CG-A)/1 (2205CG-B)

Work Life, @ 25°C:

- |  |     |
|--|-----|
| 1. Extrudability from unattended cartridge, mins | 15* |
| 2. Trowelability of extruded 5 gram mass, mins   | >30 |

\*Note: Work life of material can be greatly extended by periodically extruding fresh material from cartridge tip. In order to maintain extrudability from cartridge, at least 4 inches of material must be expunged every 15 minutes, otherwise the material at the end of the mix tip will thicken or gel and the mix tip will need to be replaced with a new one.

Handling Notes:

1. Urethane resins are moisture sensitive, therefore, blanket unused cartridges with argon or dry nitrogen prior to resealing. Whenever possible, try to use a complete kit.
2. Prior to application of adhesive, clean part(s) to be bonded with a lint free cloth and allow to dry prior to applications of adhesive.

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**MIXING**

Dual cartridge/dispenser kits

- Hold cartridge firmly and upright.
- Unscrew protective cap counterclockwise and pull off protective seal exposing the adhesive ports. Insert base of mixing tube over the exposed adhesive ports by screwing firmly on.
- Hold ratchet gun with the plunger facing you. While pushing the red button with thumb, pull back black plunger fully, until it stops. Insert the cartridge into slot on top of gun. Pull trigger slowly until plunger seats into cartridge. Continue to apply pressure to trigger to dispense adhesive through the tube. Allow one inch of adhesive to extrude before applying to bonding surface. Cut back tip of tube to adjust bead size. To remove plunger from spent cartridge push red button and pull back black plunger fully; then cartridge can be removed from gun.

**CURE SCHEDULE**

2 hours @ 70°C

-or-

7 days @ 25°C

\* After 16 hours @ RT, the parts will be easily handleable and may be moved to another location to complete its cure.

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

**TYPICAL PROPERTIES**

(values not to be used for specification purposes)

<b><u>CHARACTERISTICS</u></b>	<b><u>2205CG-A</u></b>	<b><u>2205CG-B</u></b>	<b><u>TEST METHOD</u></b>
Color	Hazy	Amber	Visual
Specific Gravity	0.99	1.26	ASTM D-1475
Viscosity @ 25°C,	thixotropic paste	thixotropic paste	Visual
Flash point, °C	>150°C	>150°C	ASTM D-92
Shelf Life @ 25°C in factory sealed containers, months *Shelf life study in progress	3*	3*	
<b><u>CURED PHYSICAL PROPERTIES</u></b> (2 hr @ 70°C)	<b><u>2205CG-A/B</u></b>		<b><u>TEST METHOD</u></b>
Hardness, Durometer A	80		ASTM-D-2240
Lap Shear Strength, 5 mil, bondline thickness on aluminum panels (scuffed/sanded with 60 grit, IPA wiped)			
Tested @ RT, psi	950		ASTM-D-1002
Tested @ 85°C, psi	325		ASTM-D-1002

Tensile Strength @ 25°C 0.058" thickness, psi	700	ASTM-D-638
Elongation, %	200	ASTM-D-638
Glass transition temp., °C	-62	ASTM E831-86
Thermal coefficient of expansion, in/in/C°		
alpha 1	90 x 10 <sup>-6</sup>	
alpha 2,	230 x 10 <sup>-6</sup>	ASTM E831-86
Outgassing @ 10 <sup>-6</sup> torr,		ASTM E-595
TML, %	0.58	
CVCM, %	0.02	

**CURED ELECTRICAL PROPERTIES****APTEK 2205CG-PMF****TEST METHOD**

Volume resistivity @25°C, ohm-cm	>1 x 10 <sup>x15</sup>	ASTM D-257
Dissipation factor (D)/Dielectric constant (K) @25°C, 1 KHz	0.024/3.5	ASTM D-150
Dielectric strength, 0.5" thick, volts/mil	>350	ASTM D-149

**SAFETY AND FIRST AID**

**APTEK 2205CG-A** is an unfilled 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 2205CG-B** is an organic isocyanate/urethane pre-polymer blend 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, 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.

Issued: 05/01/17 – dh

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