



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2216-A/B

- Low modulus hybrid urethane
- Low outgassing
- Cartridge/dispenser kits

PRODUCT DESCRIPTION

APTEK 2216-A/B is a two component, opaque, low modulus, thixotropic, hybrid urethane adhesive displaying flexibility and good physical strength properties.

APTEK 2216-A/B has been designed to fully cure at room temperature and can be accelerated with a brief low temperature cure. This 100% solids system has been manufactured with highly pure resins to minimize the occurrence of ionic contamination without outgassing during cure or service.

KEY FEATURES AND BENEFITS

- Packaged in convenient 4/1 PBV cartridge dispenser kits for easy handling; sold in 50ml and 200ml cartridges
- Very flexible/low modulus over wide temperature range to absorb stress build-up during thermal cycling
- Very good adhesion to various substrates -superior to silicones
- Smooth thixotropic paste with no sag up to 1/4" diameter beads on vertical surfaces

HANDLING INFORMATION

Mix ratio, parts by weight or parts by volume 4 (2216-A)/1 (2216-B)

Work Life, @ 25°C:

- | | |
|--|-----|
| 1. Extrudability from unattended cartridge, mins | 15* |
| 2. Trowability 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 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.
2. Prior to application of adhesive, clean part(s) to be bonded with a lint free cloth and MEK or other suitable degreaser. Then wipe with isopropyl alcohol and allow to dry.

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MIXING**Dual cartridge/dispenser kits**

- Remove cartridge from Mil Spec bag and set aside.
- If not previously assembled, lift up the gray lever on top of gun and insert black plunger into dispenser gun by pushing up the silver lever in the back of the gun and inserting plunger into the slot through the front of the gun leading with the rounded handle. Pull the plunger all the way into the gun until the circular ports stop at the front of the gun.
- Lift up the gray lever on the top of the dispensing gun and insert/seat the cartridge into the dispensing gun with notch at the bottom end of cartridge barrel facing down.
- Lower the gray lever on the top of the dispensing gun to secure the cartridge in place. If the lever does not lower properly, the cartridge may be upside down.
- Twist off protective cap counterclockwise 90° until notch is in open position and remove cap exposing the adhesive ports.
- Inspect for material at both ends of the adhesive ports. If material is visible and flush at the ends of the ports, proceed with next step. If material is not flush at the ends of ports, squeeze the gun handle until a tiny bit of material comes out of both ports. Then wipe off the ports with a lint-free cloth so that material is flush at port-ends and no material is outside of the ports.
- Properly insert the notched base of mixing tip over the exposed adhesive ports and rotate the base of the mixing tip clockwise until it is secure.
- Pull the trigger of the gun until material is dispensed from the mix tip of the cartridge.
- Allow 3 inches of adhesive to extrude as waste before applying to bonding surface.
- Cut back tip of mixing tube to adjust bead size, as needed.
- Use material as needed.
- If material is remaining, remove used mix tip and discard and replace protective cap onto cartridge.
- To remove cartridge, push up silver lever and pull back black plunger fully; then lift up gray lever on top of the gun and remove cartridge.

CURE SCHEDULE

5-7 days @ RT
or
RT gel + 2 hours @ 65°C*

* Between 4-16 hours @ 25°C, ≤ 45%RH is preferred for best results

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>2216-A</u>	<u>2216-B</u>	<u>TEST METHOD</u>
Color	Gray	Tan	Visual
Specific Gravity	1.24	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	6	6	

<u>CURED PHYSICAL PROPERTIES</u> (16 hrs @ RT cure + 2 hrs @ 65°C)	<u>2216-A/B</u>	<u>TEST METHOD</u>
Hardness, Durometer A	65	ASTM-D-2240
Lap Shear Strength, 5 mil bondline thickness on aluminum panels, psi (scuffed/sanded with 60 grit, IPA wiped)	450	ASTM-D-1002
Cured Color – may become darker tan with age	gray/tan	Visual
<u>CURED ELECTRICAL PROPERTIES</u>	<u>2216-A/B</u>	<u>TEST METHOD</u>
Volume resistivity @25°C, ohm-cm	5 x 10 ¹⁵	ASTM D-257

SAFETY AND FIRST AID

APTEK 2216-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 2216-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.

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