



# APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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## PRELIMINARY TECHNICAL DATA & INFORMATION

### APTEK® 2513-A/B

Low outgassing, white, urethane, thermally radiative, ESD paint

### PRODUCT DESCRIPTION

**APTEK 2513-A/B** is a white, flexible, mineral oxide filled, two component, room temperature curing, urethane coating/paint designed for the wide operating temperature ranges of space applications. **APTEK 2513-A/B** was developed for use as thermally conductive coating for use on the PAF dome and other applications where the coating is not directly exposed to space.

### KEY FEATURES AND BENEFITS

- Field-approved formulation; already on hardware in space
- Low outgassing urethane binder provide coating with a wide service temperature range of -310°F to +130°F (-190°C to + 55°C)
- Passes NASA outgassing per ASTM-E 595
- Inherently has sufficient surface conductivity for ESD applications on conductive surfaces
- Formulated to sprayable viscosity for convenience
- This coating is tough and flexible and can be used on almost any substrate without fear of cracking or stress buildup during temperature cycling.

### HANDLING INFORMATION

1. Although the system is designed for spray applications, it may be thinned up to an additional 10% by volume for lower sprayable viscosities.
2. Filler will settle upon storage. Homogenize prior to use by vigorously shaking the sealed container.
3. Once uniform, pour freshly agitated **APTEK 2513-A/B** into spray gun reservoir. For best results, keep mixture in spray reservoir stirred or shaken during spraying procedure.

#### 4. SURFACE PREPARATION

- a. Substrate surface to be sprayed should be clean and dry and free from silicone, mineral, petroleum oils/greases, etc.
- b. It is recommended that substrates be scrubbed with an abrasive cleaner.  
Then rinse with distilled water until a uniform "sheet" of water film appears on surface.  
Rinse in clean, anhydrous IPA, and allow to air dry for 15 minutes. Then bake for 15 minutes @ 65°C in an air circulating oven.

#### 5. PAINT APPLICATION

- a. Use dry nitrogen, dry air, or argon as pneumatic spraying medium
- b. Spray multiple thin coats to freshly primed surfaces until a total thickness of 2-4 mils is achieved.
- c. A uniform thickness draw-down blade applicator may be used to screed down the coating in lieu of a

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spray application for small specimen sizes.

### MIXING

Weigh 100 parts of APTEK 2513 Part A into a clean dry glass, metal, or plastic container and then add 10 parts of APTEK 2513 Part B. Machine mix on 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.

Note: For best results and a bubble-free coating, vacuum mixture at less than 10mm Hg for no more than 10 seconds after "break" to avoid boiling the solvent from the mixture.

### CURE SCHEDULE

7 days at @ RT @40-60% RH for full cure

Note: Coating is tack-free and can be handled after 16-24 hours at RT

Cure schedule is a guideline. User is to determine actual cure for application. Lower temperature and lower relative humidity adversely affect the cure rate.

### TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>2513-A</u>	<u>2513-B</u>	<u>TEST METHOD</u>
Color	white to faint yellow/beige	pale yellow	Visual
Specific Gravity	1.22	1.00	ASTM D-1475
Viscosity @ 25°C,cps	35	20	ASTM-D-1824
Flash point, °C	7	7	
Shelf life, months @25°C in factory sealed containers	6	6	

<u>CURED PHYSICAL PROPERTIES</u>	<u>2513-A/B</u>	<u>TEST METHOD</u>
Maximum solar absorption, $\alpha_s$ vs thickness. mils	$\alpha_s$ /mils $\leq 0.35/2.6-2.8$ $\leq 0.32/3.0-3.3$	QDD-S697-10105
Outgassing @ $10^{-6}$ torr, TML, % CVCM, %	0.14 0.03	ASTM E-595
Surface resistivity, on conductive surfaces ohms/sq @ $10^{-6}$ torr, ohms/sq.	$1.0 \times 10^6$ $1.0 \times 10^6$	ETS-872A
Infrared emittance	$\geq 0.89$	QDD-S697-10105

**SAFETY AND FIRST AID**

**APTEK 2513-A/B** is a solvent-based, mineral filled, low viscosity urethane system which is safe to handle when used properly. Store the coating at 15-30°C in original factory sealed containers. 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 MSDS for more details.

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