



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 2719-A/B

Low outgassing, white, silicone, thermally radiative, paint

PRODUCT DESCRIPTION

APTEK 2719-A/B is a white, flexible, mineral oxide filled, two component, room temperature curing, silicone coating/paint designed for the wide operating temperature ranges of space applications. **APTEK 2719-A/B** was developed for use as thermally conductive coating where excellent resistance to intense UV light exposure is required.

KEY FEATURES AND BENEFITS

- Field-approved formulation; already on hardware in space
- Low outgassing silicone binder provide coating with a very wide service temperature range of -320°F to +400°F (-195°C to + 205°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 with an additional 15% to 25% by volume of reagent grade xylene for lower sprayable viscosities and improved finish.
2. Filler will settle upon storage. Homogenize prior to use by vigorously shaking the sealed container.
3. Once uniform, pour freshly agitated **APTEK 2719-A/B** into spray gun reservoir. For best results, keep mixture in spray reservoir stirred or shaken during spraying procedure.
4. Pot life: 2 hours if thinned per above; 75-90 minutes if no thinner is added.

5. 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, such as Ajax Oxygen Bleach. 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.

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6. SURFACE PRIMING

- a. Priming of some surfaces may not be required. User to determine if needed.
- b. Specimens should be cleaned/prepared by above procedure (or equivalent) within 2 hours prior to priming. Aptek recommends using either **MOMENTIVE SS4155** or **MOMENTIVE SS4004P** primers. (Please see appropriate MOMENTIVE TDS for proper handling instructions of the primer). Apply a thin coat (≤ 0.5 mil) by rubbing primer into the cleaned surface using a clean, dry, lint-free cloth.

Note: We have found that mixing fresh MOMENTIVE SS4155 primer with anhydrous isopropyl alcohol at 1/1 PBW or PBV has demonstrated improved adhesion.

- c. Allow primer to air dry for 90-120 minutes prior to application of adhesive. Relative humidity should be 35-60%.

7. PAINT APPLICATION

- a. Use dry nitrogen, dry air, or argon as pneumatic spraying medium
- b. Recommended spray equipment are HVLP (high-volume, low-pressure) spray guns, such as a Devilbiss SRIPRO 65-35G-10 spot repair gun for lab and small volume use (www.devilbiss.com). The canister for this gun is 265ml. For larger production scale use, the Anest Iwata LPH400-164LV Gravity Gun (www.anestiwata.com) is preferred. The canister for this gun is 600ml.
- c. The primary coat may be sprayed in multiple thin coats of freshly mixed paint to the primed surfaces until a total even thickness of the wet coating is 3-5 mils is achieved. Note: Do not wait more than 5 minutes to spray the multiple thin coats.
- d. If an additional coat is required on top of the primary coat, it should be sprayed after a waiting period of 16-24 hours. This is required for the first coat to sufficiently dry before applying the second coat. There is no need to prime between first and second coats.
- e. An alternative to spraying would be to use a uniform thickness draw-down blade applicator to screed down the coating in lieu of a spray application for small specimen sizes.
- f. Estimated coverage per quart kit thinned with 20% by volume of xylene is approx. 25 sq. ft. at 3-4 mils thickness of cured coating. It is suggested for optimum performance, that cured coating does not exceed a thickness of 4 mils.

MIXING

Weigh 100 parts of APTEK 2719 Part A into a clean dry glass, metal, or plastic container and then add 1 part of APTEK 2719 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: 1. 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.
2. VOC for freshly mixed APTEK 2719-A/B without additional thinner is 470gm/L

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>2719-A</u>	<u>2719-B</u>	<u>TEST METHOD</u>
Color	white to off-white	water clear	Visual
Specific Gravity	1.30	0.74	ASTM D-1475
Viscosity @ 25°C, cps Measured on Brookfield LVT Spindle 61, speed 60 rpm	100	7	ASTM-D-1824
Flash point, °C	-29	-29	
Shelf life, months @25°C in factory sealed containers	12	12	

<u>CURED PHYSICAL PROPERTIES</u>	<u>2719-A/B</u>	<u>TEST METHOD</u>
Typical solar absorption, α_s vs thickness. mils	<u>α_s/mils</u> 0.24/2 0.22/3 0.21/4	ASTM E-903
Outgassing @ 10^{-6} torr, TML, % CVCM, %	0.50 0.02	ASTM E-595
Surface resistivity, on conductive surfaces ohms/sq at 100V bias @ 10^{-6} torr, ohms/sq.	10^6 to 10^9 10^6 to 10^9	ETS 872A (resistance meter)
Total normal emittance	0.93	ASTM E-408

SAFETY AND FIRST AID

APTEK 2719-A/B is a solvent-based, mineral filled, low viscosity silicone resin 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 SDS for more details.

Revised: 02/05/18 – mjb

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