



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. Filler in part A will settle upon storage. Homogenize prior to use by vigorously shaking the sealed container. After shaking the sealed container, remove the lid and scrape bottom of the container with spatula to ensure no filler/pigment remains on the bottom of the containers.
2. Parts A and B contain fast evaporating solvent. Reseal containers as soon as possible to avoid solvent evaporation.
3. It is recommended that the A/B mixture of paint be thinned with 15% to 25% (typically 20%) by volume of xylene on top of mixture for lower sprayable viscosities and improved surface finish.
4. Pour freshly agitated **APTEK 2719-A/B** into spray gun reservoir. For best results, keep mixture in spray reservoir stirred or shaken during or directly prior to spraying procedure.
5. It is best practice to filter A/B and xylene mixture through 75-100 micron filter cloth prior to spray to remove any Pigment agglomerates from paint and ensure a smooth coating. Help mixture move through the filter cloth with the use of a spatula. Make sure no filler is left on top of the filter cloth, other than small agglomerates/FOD.
6. Pot life: 2 hours, if thinned per above with xylene; 60-90 minutes if no thinner is added.

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SURFACE CLEANING 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, water, and maroon ScotchBrite. Then rinse with distilled water until a uniform "sheet" of water film appears on surface – called a "waterbreak condition". If water beads up like a freshly waxed car and does not flow smoothly over the substrate like a "sheet", then a waterbreak condition has not been achieved and must be cleaned/scrubbed again with the above procedure.
- c. Once a waterbreak condition has been achieved, rinse with clean, anhydrous IPA, and allow to air dry or bake for 15 minutes @ 65°C in an air circulating oven.

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.
- c. Aptek recommends using either **MOMENTIVE SS4155** or **MOMENTIVE SS4044P** primers. (Please refer to the 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: when using Momentive SS4155 primer, we recommend blending the primer 1:1 with anhydrous IPA to ensure a thin application of primer.
- d. Allow primer to air dry for 60-120 minutes prior to application of adhesive. Relative humidity should be 35-60%.

PAINT APPLICATION

- a. Use dry nitrogen, dry, oil-free air, or argon as pneumatic spraying medium
- b. Recommended spray equipment are HVLP (high-volume, low-pressure) spray guns, such as a Devilbiss PROLITE-S-HV5-TE5-10-C, P/N 905082 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. Spray multiple (typically 3-4) wet coats of freshly mixed paint to the primed surfaces until a total even thickness of the wet coating is 3-6 mils is achieved. Note: Subsequent coats can be sprayed immediately after the previous coat – you do not need to wait until the previous coat has dried, unless you are spraying vertical surfaces and need to avoid dripping.
- d. If an additional coat is required on top of the original cured 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 20-25 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. Add ~20% xylene for spray applications and homogenize with A/B mix.

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	water clear	Visual
Specific Gravity	1.34	0.72	ASTM D-1475
Viscosity @ 25°C, cps Measured on Brookfield LVT Spindle 61, speed 60 rpm	40	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> 0.26/2 0.24/3 0.22/4	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	10^7 to 10^{10}	ETS 872A
Total normal emittance	0.925	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.

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