



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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PRELIMINARY TECHNICAL DATA & INFORMATION

APTEK® 2727 (formerly 95395-1)

Inorganic, highly reflective, thermally radiative, paint

PRODUCT DESCRIPTION

APTEK 2727 is a white, rigid, mineral oxide filled, one component, room temperature curing, inorganic coating/paint designed for very high temperature space applications. **APTEK 2727** was developed for use as a very highly reflective coating especially in the 250 ohm wavelength range.

KEY FEATURES AND BENEFITS

- Inorganic silicate binder provide coating with a service temperature $\geq 700^{\circ}\text{C}$ (1300°F). This coating somewhat brittle and should only be used on rigid substrates
- Passes NASA outgassing per ASTM-E 595
- Water-based formulation for safety. Formulated to sprayable viscosity for convenience

HANDLING INFORMATION

1. **APTEK 2727** is a one component, ready-to-spray system, however, it may be thinned up to an additional 25% by volume with distilled water.
2. Filler will settle upon storage. Homogenize prior to use by vigorously shaking the sealed container. Ceramic stirrer beads are embedded in the filler layer to aid in re-dispersion.
3. Once uniform, pour freshly agitated **APTEK 2727** 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. 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. The best primer to use is **APTEK 2727** itself. Apply a thin coat (≤ 0.5 mil) by rubbing **APTEK 2727** into the cleaned surface using a clean, dry, lint-free cloth.

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- d. This rubbed in coating shall air dry until the water has evaporated and surface looks dry. This should occur within a few minutes but not more than 15 minutes.

6. PAINT APPLICATION

- Use dry nitrogen, dry air, or argon as pneumatic spraying medium
- Spray multiple thin coats to freshly primed surfaces until a total thickness of 2-4 mils is achieved.
- A uniform thickness draw-down blade applicator may be used to screed down the coating in lieu of a spray application for small specimen sizes.
- Estimated surface area coverage per quart is 25-30 sq. ft. at 3-4 mils cured thickness.

CURE SCHEDULE

7 days at @ RT, @40-60% RH

Cure schedule is a guideline. User to determine actual cure for application. Note that lower % RH will speed up cure rate and higher % RH will tend to slow cure rate.

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>APTEK 2727</u>	<u>TEST METHOD</u>
Color	white	Visual
Specific Gravity	1.58	ASTM D-1475
Viscosity @ 25°C,cps	150	ASTM-D-1824
Flash point, °C	N/A	
Shelf life, months @25°C in factory sealed containers	6	
<u>CURED PHYSICAL PROPERTIES</u>	<u>APTEK 2727</u>	<u>TEST METHOD</u>
Maximum solar absorption, α_s vs thickness	<u>α_s/mils</u> 0.15/2 0.12/3 0.10/4	ASTM E-903
Outgassing @ 10^{-6} torr, TML, % CVCN, %	0.48 0.02	ASTM E-595
Surface resistivity, on conductive surfaces ohms/sq, on 200 volts bias meter @ 10^{-6} torr, ohms/sq.	10^6 to 10^9 10^6 to 10^9	GR 1863/C-15
Infrared emittance	≥ 0.87	ASTM E-408

SAFETY AND FIRST AID

APTEK 2727 is a water-based, mineral filler, low viscosity coating 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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