



APTEK LABORATORIES, INC.

ISO 9001 / AS9100 Certified

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TECHNICAL DATA & INFORMATION

APTEK® 6227-ESD

ESD, thermally-radiative, modified-epoxy primer

PRODUCT DESCRIPTION

APTEK 6227-ESD is a one-component, carbon-filled, low viscosity, electrically conductive, tough, modified-epoxy primer designed to dissipate an electrostatic charge. This primer/coating has a wide operating range for various application needs and is compatible with many different adhesive systems.

KEY FEATURES AND BENEFITS

- As a primer, provides an excellent adhering surface to a variety of adhesive systems
- Meets NASA outgassing requirements per ASTM E-595 for space hardware application
- Maintains excellent substrate adhesion from -55°C (-67°F) to +177°C (350°F)
- Enhances hydrolytic stability to coated surfaces and adhesive-to-metal interfaces
- Sprayable viscosity as supplied; no thinner required

HANDLING INFORMATION

- 1) RT work life when removed from freezer storage is 2-3 weeks in sealed container.
- 2) Work life will be adversely affected by temperature and degree of solvent evaporation.
- 3) **ATTENTION:** Filler will settle during shipment/storage! Immediately before use, vigorously shake container by hand or mechanical shaker to homogenize contents. For best results, the primer must be kept agitated and homogenous in the paint reservoir while spraying.
- 4) Although the primer has been filtered prior to packaging, it is good practice to filter the paint before use through a lint-free paint filter/cloth.
- 5) Recommended spray equipment is HVLP (high-volume, low-pressure) spray guns, such as a Devilbiss SRIPRO 6535G-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. Typical spray pressure for good atomization and a uniform, wet coat is ~28psi depending on fan/feed settings.
- 6) APTEK 6227-ESD should be sprayed in multiple thin wet coats to achieve a cured coating thickness of 0.0004" – 0.0009" for best adhesion and best cured properties. It typically takes 5-6 wet coats to achieve the desired, cured, thickness range, depending on spraying technique and gun settings.

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7) Allow each sprayed coat to air dry for approximately 1-2 minutes prior to spraying a subsequent coat. Once the desired thickness/coverage is achieved, allow the coated panel to sit at room temperature for ~30-45 minutes to allow for solvent evaporation. Then proceed with heat cure.

CURE SCHEDULE

Room temperature air dry (30-45 minutes)

+

2 hours @ 125°C (257°F)

TYPICAL PROPERTIES

(values not to be used for specification purposes)

<u>CHARACTERISTICS</u>	<u>6227-ESD</u>	<u>TEST METHOD</u>
Color	Black	Visual
Specific gravity @ 16°C	0.85	ASTM D-1475
Viscosity @ 16°C, cps LVT viscometer, spindle 61, speed 60	< 5	ASTM D-1824
Flash point, °C	-9	ASTM D-92
Shelf life @ -18°C or below, in factory sealed containers, months	12	

Note: Shelf life may be reduced once containers are opened and material is exposed to air and moisture.

To preserve maximum use life, blanket the contents of the containers with dry nitrogen or argon before resealing to prevent moisture condensation within container during storage at -18°C.

<u>CURED PHYSICAL PROPERTIES</u>	<u>6227-ESD</u>	<u>TEST METHOD</u>
Lap shear strength on primed, etched bare aluminum panels when bonded with LOCTITE EA 9396-A/B; 5 mil bondline, psi		ASTM D-1002
@ RT	2800	
@ 177°C (350°F)	550	
Lap shear strength on primed panels bonded with Cytec 1146 film adhesive, psi		ASTM D-1002
@ RT	5200	
@ 121°C (250°F)	3300	
T-Peel strength on primed Al-clad panels @ 25°C (77°F) when bonded with Cytec 1146 film adhesive, pli	24	ASTM D-1876
Solar absorptance, alpha	0.945	ASTM E-903
Total normal emittance on aluminum	0.93	ASTM E-408
Resistance to MEK/acetone rub-test	Good	Visual

Outgassing @ 10 ⁻⁶ Torr		
TML, %	0.57	ASTM-E595
CVCM, %	0.04	ASTM-E595

CURED ELECTRICAL PROPERTIES**6227-ESD****TEST METHOD**

Surface resistivity @ 25°C,
0.0006" thick film, on G-10 PCB, ohms/square

10⁴ – 10⁸

ETS 860B

SAFETY AND FIRST AID

APTEK 6227-ESD is a mineral-filled epoxy resin containing MEK and is thus considered a flammable liquid and should be treated with caution. Avoid storage temperatures above 5°C and keep away from flame, sparks, or other sources of ignition. Use in 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 a physician. Refer to Material Safety Data Sheet for more details.

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