Premium Acrylic Conformal Coating

Description

419E is a one-part, UL 746E certified, acrylic conformal coating. It cures to a durable, flexible and smooth finish. It is easy to apply and can be handled in 15 minutes. It may be removed with appropriate strippers, or soldered through for repair or rework.

419E creates a robust moisture barrier that protects printed circuit boards in humid environments. It provides strong protection against moisture, corrosion, fungus, dirt, dust, thermal shock, short circuits, high-voltage arcing, and static discharge.

Features and Benefits

- *Certified UL 746E (File# E203094)*
- *Meets IPC-CC-830B*
- *Xylene and toluene free*
- *Fluoresces under UV-A light*

Usage Parameters

Properties	Value
Tack free	11 min
Recoat time	6 min
Full cure @22 °C [72 °F]	24 h
Full cure @65 °C [149 °F]	30 min
Full cure @80 °C [176 °F]	15 min
Full cure @100 °C [212 °F]	5 min
Shelf life	5 y
Theoretical coverage per 340 g can [a)]	≤3 400 cm^2 [≤530 in^2]

a) Estimate based on a coat thickness of 25 µm [1.0 mil] and 50% transfer efficiency.

Temperature Ranges

Properties	Value
Constant service temperature	-65–130 °C [-85–266 °F]
Storage temperature limits	-5–40 °C [23–104 °F]

Cured Properties

Physical Properties	Method	Value
Color	Visual	Clear
Solderability	—	Excellent
Weather resistance	—	Excellent
Fungus resistance	IPC-TM-650 2.6.1.1	Pass
Flexibility	IPC-TM-650 2.4.5.1	Pass
Flammability	UL registered E203094	94 V-0
Electrical Properties	**Method**	**Value**
Breakdown voltage @0.9 mil	ASTM D 149	950 V [0.95 kV]
Dielectric strength @09 mil	ASTM D 149	1 100 V/mil [44 kV/mm]
Dielectric withstand voltage	per IPC-TM-650	>1 500 V [>1.5 kV]
Thermal Properties	**Method**	**Value**
Glass transition temperature (T_g)	ASTM E 831	54 °C [129 °F]
CTE [a)] prior T_g	ASTM E 831	160 ppm/°C [320 ppm/°F]

Cured Properties

Mechanical Properties	Method	Value
Adhesion (ABS) (PC) (PVC) (Polyamide) (Glass) (Copper) (Aluminum) (PC)	ASTM D 3359 ASTM D 3359 ASTM D 3359 ASTM D 3359 ASTM D 3359 ASTM D 3359 ASTM D 3359 ASTM D 3359	5B 5B 4B 5B 4B 5B 5B 5B
Pencil hardness (ABS)	ASTM D 3363	H, hard

a) Coefficient of Thermal Expansion (CTE) units are in ppm/°C = in/in/°C × 10-6 = unit/unit/°C × 10-6.

Uncured Properties

Physical Properties	Method	Value
Odor	—	Ester-like, fruity
Viscosity @25 °C [75 °F] [a)]	Brookfield SP1	160 cP [0.16 Pa·s]
Density	ASTM D 1475	0.88 g/mL
Flash point	Closed cup	-9 °C [16 °F]
Boiling point	—	≥80 °C [≥176 °F]
Solids content (w/w)	Calculated	7.8%

a) Brookfield viscometer at 30 rpm with spindle LV S61.

Compatibility

The 419E adheres to most plastics and metals used to house printed circuit assemblies; however, it is not compatible with contaminants like water, oil, or greasy flux residues that may affect adhesion. If contamination is present, first clean the surface to be coated with MG Chemicals 824 Isopropyl alcohol.

Attention!
Do not use on thin plastics or plastics where you want to keep original surface. The product contains a controlled amount of solvents designed to chemically etch plastic surfaces to help adhesion.

Storage

Store between -5 to 40 °C [23 to 104 °F] in a dry area, away from sunlight.

Health and Safety

Please see the 419E-Aerosol Safety Data Sheet (SDS) for further details on transportation, storage, handling, safety guidelines, and regulatory compliance.

Application Instructions

Spraying:

1. Shake the can vigorously.
2. Spray a test pattern to ensure good flow quality.
3. At an approximate distance of 20–25 cm (8–10 in), tilt the board 45° from a vertical position and spray a thin and even coat. Use spray-and-release strokes with an even motion to avoid excess paint in one spot. Start and end each stroke off the surface.
4. Wait 2–3 min before applying another coat to avoid trapping solvent.
5. Rotate the board 90° and spray again to ensure good coverage.
6. Apply other coats until desired thickness is achieved (go to step 3).
7. Let dry for 2–3 min at room temperature before heat cure.

Clearing nozzle between use:

1. Invert the can upside down.
2. Hold button until clear propellant comes out. The propellant should clear in seconds.

Cure Instructions

Room temperature cure:

- Let cure at room temperature for 24 h.

Heat cure:

- Put in oven at 65 °C [149 °F] for 30 min.
  —OR—
- Put in oven at 80 °C [176 °F] for 15 min.
  —OR—
- Put in oven at 100 °C [212 °F] for 5 min.

Packaging and Supporting Products

Cat. No.	Packaging	Net Volume	Net Weight
419E-340G	Aerosol	420 mL [14.2 fl oz]	340 g [11.9 oz]
419E-1L	Can	945 mL [1.99 pt]	830 g [1.83 lb]
419E-4L	Can	3.78 L [1.00 gal]	3.32 kg [7.32 lb]
419E-20L	Pail	18.9 L [4.99 gal]	16.6 kg [36.6 lb]

Technical Support

Please contact us regarding any questions, suggestions for improvements, or problems with this product. Application notes, instructions and FAQs are located at www.mgchemicals.com.

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