

419D Liquid



Acrylic Conformal Coating

419D is a 1-part acrylic conformal coating that cures to a durable, flexible and smooth finish. It is easy to apply and can be handled in 10 minutes. It may be removed with appropriate strippers, or soldered through for repair or rework.

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



Features and Benefits

- Certified UL 94 V-0 (File# E203094)
- Qualified to IPC-CC-830B
- Xylene and toluene free
- Fluoresces under UV-A light
- Validated for selective robotic coating equipment

Available Packaging

Cat. No.	Packaging	Net Vol.	Net Wt.
419D-55ML	Bottle	55 mL	50.6 g
419D-1L	Can	945 mL	869 g
419D-4L	Can	3.78 L	3.47 kg
419D-20L	Can	18.9 L	17.3 kg

Contact Information

MG Chemicals, 1210 Corporate Drive
Burlington, Ontario, Canada L7L 5R6

Email: support@mgchemicals.com

Phone: North America: +(1)800-340-0772

International: +(1) 905-331-1396

Europe: +(44)1663 362888

Cured Properties

Resistivity	$4.6 \times 10^{14} \Omega \cdot \text{cm}$
Dielectric Strength	1 000 V/mil
Dielectric Withstand Voltage	>1 500 V
Insulation Resistance	$1 \times 10^{13} \Omega$
Moisture Insulation Resistance	$1 \times 10^{12} \Omega$
Dielectric Constant @ 1 MHz	2.85
Dissipation Factor @ 1 MHz	0.004
Glass Transition Temperature (T_g)	27 °C
CTE Prior T_g	72 ppm/°C
Service Temperature Range	-65–125 °C

Usage Parameters

Dry Time To Handle (1 coat)	10 min
(2 coats)	20 min
Minimum Recoat Time	3 min
Recommended Film Thickness	25–75 μm
Theoretical Coverage @ 25 μm	61 000 cm^2/L

Uncured Properties

Viscosity @ 25 °C	115 cP
Density	0.92 g/mL
Percent Solids	30 %
Shelf Life	5 y
Calculated VOC	654 g/L

419D Liquid



Application Instructions

Read the product SDS before using this product (downloadable at www.mgchemicals.com).

Recommended Preparation

Clean the substrate with Isopropyl Alcohol, MG #824, so the surface is free of oils, dust, and other residues.

Recommended Thinner

When thinning is required, use MG #4352 Thinner 2.

Brush

Thinning is not required for most brush applications.

HLVP Spray

Dilute 1-part coating to 1-part thinner. Use a standard HVLP (High Volume Low Pressure) fluid nozzle gun with a minimum tip diameter of 0.8–1.0 mm. The settings listed below are recommendations; however, performance will vary with different brands:

- Inlet: 20–40 psi
- Air flow: 10–15 SCFM
- Air cap: 8–10 psi

1. Dilute coating with MG #4352 Thinner 2. Adjust ratio if required.
2. Stir the coating gently but thoroughly.
3. Spray a test pattern to ensure good flow quality.
4. Tilt the board at 45° and spray a thin even coat from a distance of 20–25 cm (8–10 in). Use spray-and-release strokes with an even motion to avoid paint buildup in one spot. Start and end each stroke off the surface.
5. Wait 3 min before applying another coat, to avoid trapping solvent.
6. Rotate the board 90° and spray again to ensure good coverage.
7. Apply additional coats until desired thickness is achieved (go to step 3).
8. Let dry 3 min at room temperature before applying heat cure.

Dip Coat

Use a Ford or Zahn cup to monitor the viscosity of the coating, as the solvent will evaporate over time.

1. Hang the PCB on a dipping arm.
2. Slowly lower the PCB into a tank and leave immersed in the coating for 2 min to allow penetration.
3. Slowly withdraw the PCB from the tank at a rate of approximately 6" per minute.
4. Let dry for 3 min before applying additional coats or heat cure.

Robotic Spray

For higher volume applications, coating can be applied via robotic spray equipment. A fluid nozzle ranging from 0.5 mm to 1.0 mm diameter and 5–10 psi fluid pressure is recommended depending on nozzle size. Thin the coating to adjust viscosity to the level appropriate for the valve being used.

Cure Instructions

Allow to dry at room temperature for 24 hours, or after letting sit for 10 minutes, cure the coating in an oven at one of these time/temperature options:

- 1 h @ 65 °C
- 20 min @ 80 °C
- 10 min @ 100 °C
- 5 min @ 120 °C

Clean-up

Clean spray system and equipment with MEK or acetone, MG #434.

Storage and Handling

Store between -5 and 40 °C in a dry area, away from sunlight (see SDS).

Disclaimer

This information is believed to be accurate. It is intended for professional end-users who have the skills required to evaluate and use the data properly. M.G. Chemicals Ltd. does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.