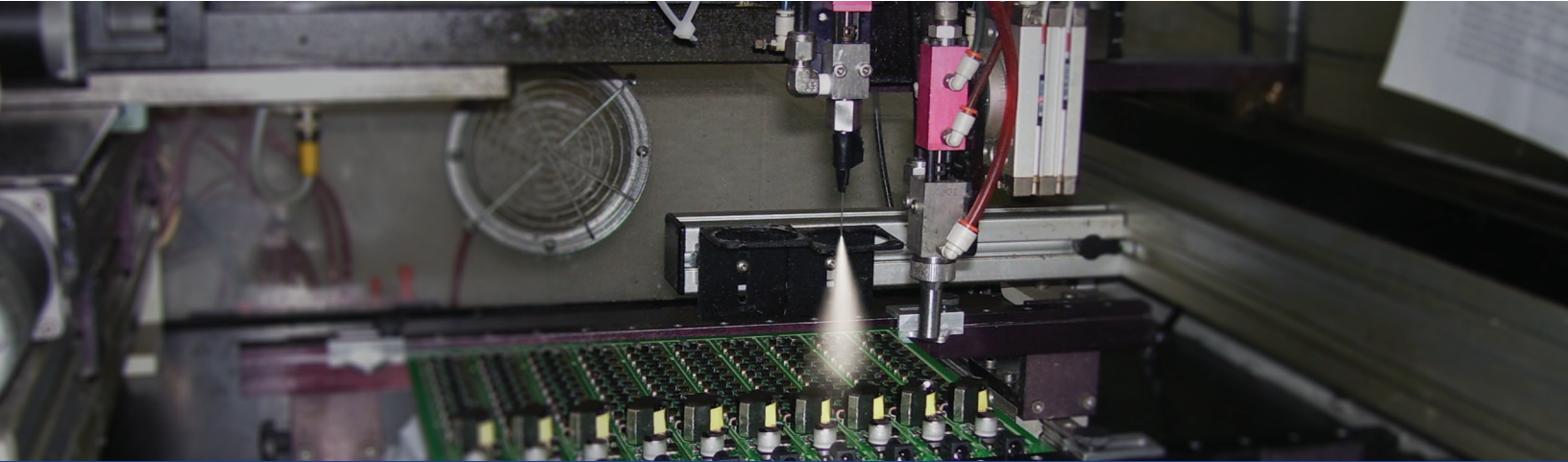


# Conformal Coatings



## Thin protective coatings for circuit boards

### Features and Benefits:

- Clear, thin, flexible and durable
- Protects against dust, humidity, moisture, salt spray and chemical fogs
- Protects against arcing, shorts, static discharges and thermal shocks
- Prevents corrosion
- Contains a UV indicator for optical inspection
- May be applied by brushing, dipping, spraying or robot
- Available in liquid or aerosol packaging
- IPC and UL compliant versions available

### Applications:

- Improves reliability and lengthens the life of electronic circuitry
- Protects circuitry in coastal cities, and tropical, marine, or other humid environments
- Allows electronic devices to operate in other harsh environments
- Allows traces to be placed closer together by preventing arcing

### We offer conformal coatings in varying chemistries to meet the specific requirements of different applications:

#### 419D Acrylic Conformal Coating

- Easy application and rework
- Cures at room temperature
- Good humidity resistance
- Excellent durability

#### 422B Silicone Modified Conformal Coating

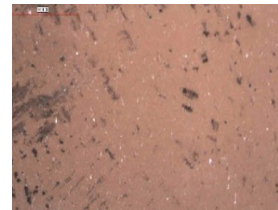
- Easy application and rework
- Soft and flexible
- Wide service temperature range

#### 4223F Urethane Conformal Coating

- Excellent humidity resistance
- Excellent dielectric strength
- Good chemical resistance
- Abrasion resistant

#### 4225 Epoxy Conformal Coating

- Extremely durable
- Excellent moisture resistance
- Excellent chemical resistance
- Good dielectric strength
- Scratch and mar resistant



ASTM B-117 test results showing control (left image) vs copper coated with 4223F (right image) after 7 days

## Conformal Coatings Comparison Chart

Cured Properties	419D	422B	4223F	4225
<b>Certifications</b>				
IPC-CC-830B	Yes	No	Yes	TBD
UL 746E	No	No	Yes	TBD
UL 94 Flammability	V-0	V-0	V-0	Meets
<b>Electrical Properties</b>				
Dielectric Strength	1 000 V/mil	1 056 V/mil	1 000 V/mil	TBD
Dielectric Withstand Voltage	>1 500 V	>1 500 V	>1 500 V	>1 500 V
Insulation Resistance, 24 h	1 x 10 <sup>12</sup> Ω	TBD	9 x 10 <sup>12</sup> Ω	5 x 10 <sup>12</sup> Ω
<b>Thermal Properties</b>				
Constant Service Temperature	-65 to 125 °C -85 to 257 °F	-40 to 200 °C -40 to 392 °F	-40 to 145 °C -40 to 293 °F	-40 to 140 °C -40 to 284 °F
Glass Transition Temperature (Tg)	44 °C (111 °F)	TBD	57 °C (135 °F)	42 °C (108 °F)
<b>Physical Properties</b>				
Solderability	Excellent	Fair	Good	Poor
Fungus Resistance	Excellent	Excellent	Excellent	Excellent
Chemical Resistance	Poor	Poor	Excellent	Excellent
<b>Uncured Working Properties</b>				
Available Format(s)	Liquid/Aerosol	Liquid/Aerosol	Liquid/Aerosol	Liquid (2-part)
Color	Clear	Clear	Clear	Clear
Solid %(wt/wt)	29 %	28%	45%	56%
Density	0.92 g/mL	0.90 g/mL	0.89 g/mL	0.97 g/mL (A) 0.89 g/mL (B)
Viscosity	100 cP	60 cP	330 cP	11 cP (A) 58 cP (B)
<b>Application Parameters</b>				
Theoretical Coverage	≤1 620 in <sup>2</sup> 340G Spray Can	≤234 000 in <sup>2</sup> HVLP Spray	≤52 900 in <sup>2</sup> HVLP Spray	N/Ap
Dry to Touch	10-15 min	5-7 min	15 min	7 h
Recoat Time	2-3 min	5 min	3 min	2 h
Drying Time @22 °C (72 °F)	24 h	48 h	N/Ap	48 h
Drying Time @65 °C (149 °F)	60 min	20 min	N/Ap	4 h
Drying Time @80 °C (176 °F)	N/Ap	N/Ap	16 h	2 h

Values are based on liquid formulation. Values for aerosol format may vary slightly. TBD=To be determined, N/Ap=Not Applicable



**312 g / 340 g**  
419D-340G  
422B-340G  
4223F-312G



**5 mL Pen**  
422B-P



**55 mL Bottle**  
422B-55ML



**1 L Can**  
419D-1L  
4223F-1L  
422B-1L



**4 L Can**  
419D-4L  
4223F-4L  
422B-4L



**20 L Pail**  
419D-20L  
4223F-20L  
422B-20L