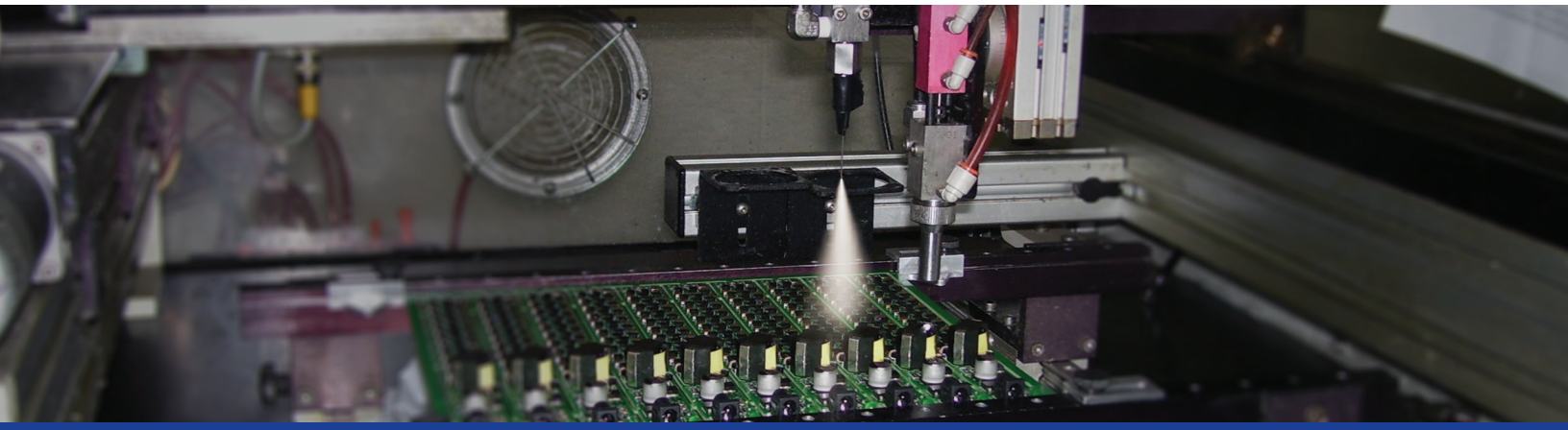
Conformal Coatings



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 arching, 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

419E Premium Acrylic Conformal Coating

- Recognized under UL 746E (File# E203094)
- Easy application and rework
- Cure 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

Conformal Coatings Comparison Chart

	419D	419E	422B	4223F	4225
CURED PROPERTIES					
Certifications					
IPC-CC-830B	Yes	TBD	No	Yes	TBD
UL 746E	No	Yes	No	Yes	TBD
UL 94 flammability	V-0	V-0	V-0	V-0	Meets V-0
Electrical Properties					
Dielectric strength	1 000 V/mil	1 100 V/mil	1 056 V/mil	1 000 V/mil	TBD
Breakdown voltage	700 V	950 V	TBD	1 200 V	TBD
Dielectric withstand voltage	>1 500 V	>1 500 V	>1 500 V	>1 500 V	TBD
Insulation resistance	1 x 10^{12} Ω	TBD	TBD	9 x 10^{12} Ω	10^{12} Ω
Resistivity	4.6 x 10^{14} Ω·cm	TBD	1.2 x 10^{15} Ω·cm	3.5 x 10^{13} Ω·cm	TBD
Thermal Properties					
Constant service temperature	-65 to 125 °C	-65 to 130 °C	-40 to 200 °C	-40 to 145 °C	-40 to 140 °C
Glass transition temperature (T_g)	44 °C (111 °F)	54 °C (129 °F)	TBD	57 °C (135 °F)	42 °C (108 °F)
CTE prior T_g	72 ppm/°C	160 ppm/°C	253 ppm/°C	130 ppm/°C	210 ppm/°C
CTE after T_g	N/A	N/A	N/A	190 ppm/°C	245 ppm/°C
Physical Properties					
Solderability	Excellent	Excellent	Fair	Good	Poor
Fungus resistance	Excellent	Excellent	Excellent	Excellent	Excellent
Chemical resistance	Poor	Poor	Poor	Excellent	Excellent
Mechanical Properties					
Adhesion (ABS)	5B	5B	5B	0B	0B
Pencil hardness (ABS)	HB, soft	H, hard	F, hard	HB, soft	2H, hard
UNCURED PROPERTIES					
Color	Clear	Clear	Clear	Clear amber	Clear
Solid %(wt/wt)	29 %	29%	28%	45%	56%
Density	0.92 g/mL	0.88 g/mL	0.90 g/mL	0.89 g/mL	0.97 g/mL (A), 0.89 g/mL (B)
Viscosity	100 cP	160 cP	11 cP	330 cP	10 cP (A), 60 cP (B)
Application Parameters					
Theoretical coverage per litre	≤9 400 in^2	≤9 200 in^2	≤10 000 in^2	≤13 000 in^2	N/A
Drying time to handle	10–15 min	11 min	5–7 min	15 min	7 h
Recoat time	2–3 min	6 min	5 min	3 min	15 min
Full cure @22 °C (72 °F)	24 h	24 h	48 h	N/A	48 h
Full cure @65 °C (149 °F)	1 h	30 min	20 min	N/A	4 h
Full cure @80 °C (176 °F)	20 min	15 min	TBD	16 h	2 h
Full cure @100 °C (212 °F)	10 min	5 min	TBD	2 h	40 min

Values are for liquid versions. Refer to TDS for other formats and for more information. TBD=To be determined. N/A=Not applicable.

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

5 mL Pen
422B-P

55 mL Bottle
422B-55ML
4223F-55ML

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

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

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