



CONFORMAL COATINGS



NEW!

TURBO-COAT HV™

High-Speed Acrylic Coating Designed To Optimize Performance in Spray Systems.

- High-Speed Cure
- Qualified For Most Common Spray Systems
- HAPs Free – Safer Solvents for Lower Toxicity
- IPC-CC-830B, MIL-I-45058C & UL94 V-0 Qualified



Acrylic (AR) Conformal Coating



Acrylic coatings offer good moisture protection and some of the best dielectric properties available. They are not chemically resistant, so can be partially or fully dissolved by common solvents. While this can be a negative for some applications, it allows for easier clean-up and rework. The economical price, ease of application, and good general protection makes acrylic coatings a very popular middle-of-the-road choice.

TURBO-COAT™

Built For Speed... Tack-Free in 3 Minutes!

Techspray's Turbo-Coat™ Acrylic Conformal Coating is designed to speed up board production throughput without additional investment of expensive UV systems or other curing equipment.

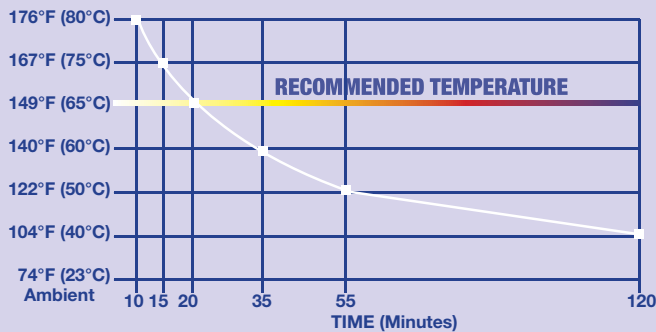
Conformal coating cure time is often considered a production bottleneck for PCB assembly operations. Turbo-Coat dries tack-free in 3 minutes, allowing manufactures to handle boards in 1/3 the time of the leading acrylic coating! Full cure can be achieved as quickly as 10 minutes with elevated temperatures.



2108-12S

2108-G

Full cure time is extremely fast at elevated temperatures. As low as 10-20 minutes!



- Fastest Cure – Dry to Touch in 3 Minutes!
- Faster Throughput without Capital Investment
- HAPs Free – No Toluene, Xylene or MEK
- IPC-CC-830B & MIL-I-46058C Qualified
- UL94 V-0 Rated – Non-Flammable Final Coat
- Fast & Easy Rework & Repair
- Crystal Clear & Glossy Finish
- UV Indicator for Black Light QC Inspection

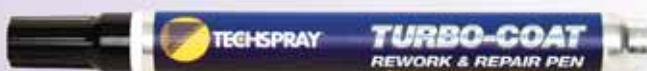
Specifications: Meets or exceeds MIL-I-46058C Type AR and IPC-CC-830B. UL94 V-0 rated.

2108-12S	12 oz aerosol
2108-P	1 pint (0.47L) in glass bottle
2108-G	1 gal (3.8L) in metal can
2108-5G	5 gal (18.9L) in metal pail
2108-N	10 ml Rework Pen

NEW!

Turbo-Coat Rework Pen – 2108-N

Rework conformal coating shadows, open areas, scratches, and other imperfections without the use of an acid brush and other spot rework methods. Repair fuses with previous coating, and acrylic resin is an exact match for Turbo-Coat (2108) and Turbo-Coat HV (2109) coatings.



NEW!

TURBO-COAT HV™

Higher Viscosity for Precision Spray Systems

Turbo-Coat HV uses the same fast-curing acrylic resin as the original Turbo-Coat, but it is specifically designed for selective spray systems like from Asymtek and PVA.



Photo courtesy of PVA

Straight out of the can, Turbo-Coat HV is ready for high precision selective spraying, saving the time and trouble of thinning. An exact line of coating of up to 3mil (cured thickness) can be applied without the use of mask or kapton tape, and then the coating quickly dries in ambient temperatures. Turbo-Coat HV does not contain HAPs (hazardous air pollutants) like toluene, xylene, or MEK, so toxicity is much lower than most coatings.

- Dry to Touch in Under 10 Minutes
- Ideal Viscosity for Selective Sprayers
- Qualified for Asymtek & PVA Systems
- HAPs Free – No Toluene, Xylene or MEK
- IPC-CC-830B & MIL-I-46058C Qualified
- UL94 V-0 Rated – Non-Flammable Final Coat
- Fast & Easy Rework & Repair
- UV Indicator for Black Light QC Inspection



Razor sharp edge definition
Photo courtesy of Asymtek

Specifications: Meets or exceeds MIL-I-46058C Type AR and IPC-CC-830B. UL94 V-0 rated.

- 2109-P** 1 pint (0.47L) in glass bottle
- 2109-G** 1 gal (3.8L) in metal can
- 2109-5G** 5 gal (18.9L) in metal pail
- 2109-54G** 54 gal (94.5L) in metal drum



NEW!

Turbo-Coat Thinner

If viscosity needs to be lowered for atomized spray systems or to extend pot life, Turbo-Coat Thinner is an ideal match for Turbo-Coat coatings (2108 & 2109). Like the original Turbo-Coat and Turbo-Coat HV, Turbo-Coat Thinner does not contain HAPs (hazardous air pollutants) like toluene, xylene, or MEK.

- 2110-G** 1 gal (3.8L) in metal can
- 2110-5G** 5 gal (18.9L) in metal can

Urethane (UR) Conformal Coating

Urethane coatings are rigid and hard, providing good moisture resistance and the best chemical resistance. NASA testing has shown that urethane can slow tin whisker growth. Although urethane will not stop tin whiskers, full coverage can prevent whiskers that have broken free from redepositing on contact points. (source: <http://nepp.nasa.gov/whisker/>)

FINE-L-KOTE UR Urethane Conformal Coating

Urethane Conformal Coating is widely used in harsh chemical environments or where a rigid, hard coating is required.

- Moisture Resistant
- Chemically Resistant
- Abrasion Resistant
- IPC-CC-830B & MIL-I-46058C Qualified
- UV Indicator for Black Light QC Inspection



Specifications: Meets or exceeds MIL-I-46058C Type UR and IPC-CC-830B.

- 2104-12S** 12 oz aerosol
- 2104-G** 1 gal (3.8L) in metal can
- 2104-5G** 5 gal (18.9L) in metal pail

Fine-L-Kote Conformal Coating Thinner

Techspray Fine-L-Kote coatings (AR,UR,SR, and HT) can be thinned to meet production requirements using Fine-L-Kote Thinner. This is a common solution for cobwebbing in a spray system.

- 2105-G** 1 gal (3.8L) in metal can

Conformal Coating Remover

Conformal Coating Remover is available for rework and repair, although coating is often burnt through in the soldering process for spot repairs. Using remover gives a cleaner final appearance, prevents solder contamination, and increases soldering tip life.

- 2510-N** 10 ml rework pen
- 2510-P** 1 pint (0.47L) in metal bottle



TraceTech Overcoat Pen

Green acrylic conformal coating insulates circuit board traces and components against high voltage arcing. Ideal for repairing resist chips and scratches.

- 2509-GN** 5 ml rework pen



Silicone (SR) Conformal Coating



Silicone coatings are generally considered top-of-the-line because of superior moisture protection, great dielectric strength, flexibility, and resistance to thermal shock. Although more chemically resistant than acrylic, silicone can still be easily cleaned and reworked using common solvents. Silicone is often used in outdoor applications for maximum environmental protection. Flexibility makes silicone ideal when there is a great deal of vibration, because it avoids cracking.

FINE-L-KOTE SR Silicone Conformal Coating

Silicone Conformal Coating is the most universal coating, offering protection for a wide variety of environments. High viscosity formula is available for use in selective spray systems.

- Moisture Resistant
- Chemically Resistant
- Vibration Resistant — Flexible
- IPC-CC-830B & MIL-I-46058C Qualified
- UL94 V-0 Rated – Non-Flammable Final Coat
- UV Indicator for Black Light QC Inspection



Specifications: Meets or exceeds MIL-I-46058C Type SR and IPC-CC-830B. UL File Number E95150.

Standard Viscosity — 4-10 CPS

2102-12S	12 oz aerosol
2102-P	1 pint (0.47L) in glass bottle
2102-G	1 gal (3.8L) in metal can
2102-5G	5 gal (18.9L) in metal pail

High Viscosity — 70-80 CPS

2102-GHV	1 gal (3.8L) in metal pail
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2102-12S

FINE-L-KOTE HT High-Temperature Silicone Conformal Coating

High-Temperature Silicone Coating is designed to prevent thermal break-down at high temperatures. Silicone Conformal Coating is the most universal coating, offering protection for a wide variety of environments.

- Designed for High Temperature Environments
- Fast-Drying Silicone — 1-Step Process
- Moisture Resistant
- Vibration Resistant — Flexible
- UV Indicator for Black Light QC Inspection

2106-12S	12 oz aerosol
2106-G	1 gal (3.8L) in metal can



2106-12S

Coating Specifications

UL94 FLAMMABILITY STANDARD:

UL94 is a flammability standard released by Underwriters Laboratories (UL). The test attempts to ignite the fully cured coating with an open flame. The following are the most common classifications found for coatings:

- V0 – Burning stops after 10 seconds, no flaming particles.
- V1 – Burning stops after 30 seconds, no flaming particles.
- V2 – Burning stops after 30 seconds, flaming particles present.

When a Techspray coating is rated V0, it is the best possible flammability rating under UL94.

IPC-CC-830B & MIL-I-46058C STANDARDS:

IPC-CC-830B, titled “Qualification and Performance of Electrical Insulating Compounds for Printed Board Assemblies”, is a battery of tests to qualify conformal coatings. This standard replaces MIL-I-46058C, so coatings qualified under the IPC standard can be considered qualified under the military standard.

IPC-CC-830B includes the following qualifications:

- Shelf life
- Thickness
- Fluorescence
- Fungus resistance
- Flexibility
- Flammability
- Dielectric withstand voltage
- Moisture and insulation resistance
- Thermal shock
- Hydrolytic stability

Conformal Coating Selection Guide

Match Coating With Intended Environment:

Techspray offers a variety of coating formulas to match field and engineering requirements. Specifications generally depend on the type of protection needed.

Acrylic (AR) — Acrylic coatings offer good moisture protection and some of the best dielectric properties available. They are not chemically resistant, so can be partially or fully dissolved by common solvents. Ideal for:

- Automotive
- Consumer electronics
- Appliance controls
- Industrial controls

Silicone (SR) — Silicone coatings have superior moisture protection, great dielectric strength, flexibility, and resistance to thermal shock. Ideal for:

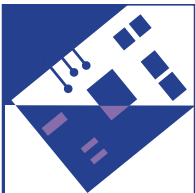
- Railway electronics
- Appliance controls
- LED signage
- Ruggedized electronics

Urethane (UR) — Urethane coatings are rigid and hard, providing good moisture resistance and the best chemical resistance. Ideal for:

- Aviation
- Aerospace
- Petrochemical meters & sensors

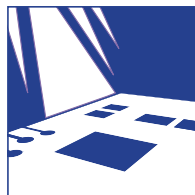


Application Guide:



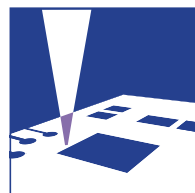
Dip — High volume method to fully coat boards. It provides full coverage front and back, with repeatable results. Thickness of final coating is controlled by viscosity and withdrawal speed from the pot. Pot life, usable life of the liquid coating, is a significant issue, and can

be controlled with a nitrogen blanket and reduced pot temperature. As the coating sits in a pot, solvents will evaporate off and thicken the material. To bring back to required viscosity, use Fine-L-Kote Thinner (2105) or Turbo-Coat Thinner (2110).



Full coverage atomized spray — An atomized spray system or spray gun, like what is used in automotive painting, can apply conformal coating. A high volume method for coating, but spray direction must be controlled to prevent shadows, where components

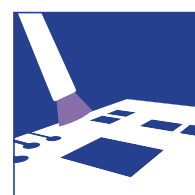
block spray and leave open areas. Viscosity needs to be monitored to avoid cob-webbing, when coating does not atomize properly. Material can be brought back to required viscosity (generally under 70 cps) using Fine-L-Kote Thinner (2105) or Turbo-Coat Thinner (2110).



Selective spray system — Computer controlled selective spray systems, like those made by Asymtek and PVA, eliminate the need for masking. Higher viscosity than full coverage sprayer is generally needed (70-200 cps) to create precise edge definition and prevent splattering.



Aerosol — Aerosol coatings are generally used for small production runs, rework and repair. If using for rework, the aerosol needs to be compatible with the original coating. Techspray conformal coatings have aerosol packaging available for a proper resin match.



Touch-up brush or pen — Acid brushes are often used for very low volume of spot coating, and to fill in shadows, open areas, and around replaced components. Quality and repeatability of a brushing process is user dependent. Turbo-Coat Rework Pen (2108-N) can be used on Turbo-Coat coatings (2108 and 2109), and provides greater precision and control than an acid brush.

CONFORMAL COATING SELECTION GUIDE

Key: ● = Best ● = Acceptable ○ = Not applicable / Not recommended

	2108 Turbo-Coat	2109 Turbo-Coat HV	2102 SR	2102 SR-HV	2106 HT	2104 UR
Product Benefits	Economical With Fastest Cure	Economical With Fastest Cure	Moisture & Vibration Resistant	Moisture & Vibration Resistant	High Operating Temperature Range	Durable & Chemically Resistant
Selective Spray System	○	●	○	●	●	●
Atomized Spray System	○	●	○	●	○	○
Dip	●	●	●	●	●	●
Aerosol Available	YES	USE 2108-12S	YES	USE 2102-12S	YES	YES
Thermal Resistant	○	○	●	●	●	○
Moisture /Fungus Resistant	○	○	●	●	●	●
Chemical Resistant	○	○	●	●	●	●
Vibration Resistant	○	○	●	●	●	○
Ease of Rework	●	●	●	●	●	○
Cure Type	THERMAL/AIR	THERMAL/AIR	THERMAL/AIR	THERMAL/AIR	THERMAL/AIR	THERMAL/AIR
Tack Free Time (minutes)	3	9	60	60	45	15
Accelerated Cure Time/Temp	1 Step 20 Min.@ 65°C	1 Step 55 Min.@ 55°C	2 Step 30 Min.@ 32°C 45 Min.@ 93°C	2 Step 30 Min.@ 32°C 45 Min.@ 93°C	1 Step 15 Min.@ 49°C	2 Step 20 Min.@ 49°C 30 Min.@ 82°C
Ambient Cure Time	<15 Hrs.	<15 Hrs	72 Hrs.	72 Hrs.	24 Hrs.	24 Hrs.
Mil-I-46058C / IPC-CC-830 Qualified	YES	YES	YES	YES		YES
UL 94 Rated	V-0	V-0	V-0	V-0		
Solids Content (% by weight)	Aerosol 7% Bulk 17%	Bulk 24%	Aerosol 11% Bulk 14%	Bulk 55%	Aerosol 16% Bulk 25%	Aerosol 7% Bulk 20%
Viscosity (centipoise)	Aerosol 10-20 Bulk 15-25	Bulk 55-60	Aerosol 4-10 Bulk 4-10	Bulk 70-80	Aerosol 15-25 Bulk 15-25	Aerosol 12-22 Bulk 10-20
UV Indicator	YES	YES	YES	YES	YES	YES
Operating Temp Range	-65° to 125° C	-65° to 125° C	-65° to 200° C	-65° to 200° C	-40° to 350° C	-30° to 121° C
Dielectric Strength	1 kV/Mil	1 kV/Mil	1.1 kV/Mil	1.1 kV/Mil	560 V/Mil	380 V/Mil
Insulation Resistance (ohms)	4.89 x 10 ¹⁶	4.89 x 10 ¹⁶	6.87 x 10 ¹⁵	6.87 x 10 ¹⁵	1.33 x 10 ¹⁶	1.78 x 10 ¹⁶