



Turbo-Coat™ Acrylic Conformal Coating

2108

Introduction

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

Like all Techspray conformal coatings, Turbo-Coat can be either sprayed or brushed, or boards can be dipped directly into the coating for a thicker layer of protection.

Features / Benefits

- Fastest Cure – Dry to Touch in 3 Minutes!
- Faster Throughput without Capital Investment
- Thick Coating – One-Pass Application
- Fast & Easy Rework & Repair
- IPC-CC-830 & MIL-I-46058C Tested
- UL94 V-0 Rated
- Crystal Clear & Glossy Finish
- UV Indicator for Black Light QC Inspection
- MEK, Toluene & Xylene Free
- Adjustable Sprayhead (Aerosol)

Applications

Electronic Assemblies for...

- Automotive
- Aviation
- Consumer Electronics
- Appliances
- Industrial Meters & Control

Thinning / Removal

Techspray coatings can be thinned to meet production requirements using Conformal Coating Thinner (2105). Conformal Coating Remover (2510) is also available for rework and repair, although coating is often just burnt through in the soldering process for spot repairs.

Thinning / Removal

Techspray coatings contain Opti/Scan to allow quality control inspection of coverage and evenness of the coating on a PCB. A coated board can be passed under a standard, low-cost UV (black) light, and the coated areas glow. The brighter the glow, the thicker the coating.

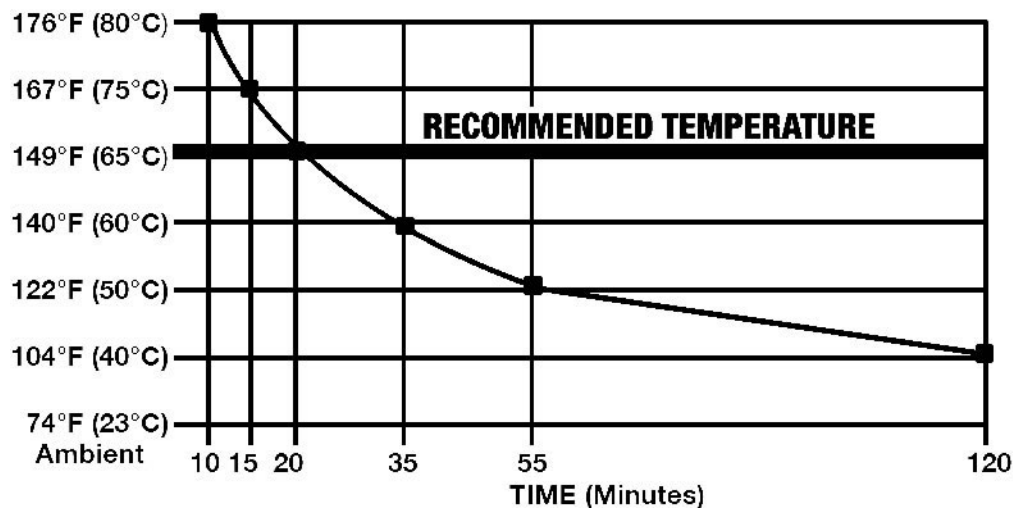
Chemical Components

Acrylic Polymer (non-hazardous)	
n-Propyl acetate.....	CAS #109-60-4
Acetone	CAS #67-64-1
n-Heptane.....	CAS #142-82-5

Cure Profile

Accelerated Cure: 20 minutes @ 149°F / 65°C
Ambient Cure: 15 hours @ 74°F / 23°C (ambient temp)
Tack-Time (dry to touch): 3 minutes @ 74°F / 23°C (ambient temp)

Cure time depends on a number of factors, including the method and thickness of application. Dilution will also change the cure profile. 149°F / 65°C is recommended as the best accelerated temperature to optimize leveling, providing the smoothest possible finish. A faster cure may be achieved, but should be thoroughly tested first.



Test Data

Application

	Test Method*	2108 Test Results
Application Method		Spray system, dip, or brush
Cure time	TS-053	24 hours
Accelerated cure time	TS-054	25 min @65 C
Dry time to touch	TS-055	3 min
Quality inspection method of coverage		UV (long-wave black) light
Removal method		Alkane, Acetone or Acetate, Solder iron burn through

Characteristics

As Supplied:	Test Method	2108 Test Results
Visual appearance	TS-050	Clear
Density (25 C)	TS-019-1	0.8603 g/ml
Viscosity (25 C)	Instrument (Brookefield RVT) guide	20 cp
Operating Temperature		-85° - 257°F / -65° - 125°C
Solids %	TS-015	15.70%
Flash point	ASTM D-56 (TAG CC)	1.7 C (35 F)
Vapor pressure (20 C) (VOC composite)	calculated	25.02mm Hg
Initial boiling point	TS-051	39.4C (103F)
Stability (30-day test @ 37 C/100 F)	TS-052	Stable
Stability (30-day test @ 6.1 C/21 F)	TS-052-1	Stable
Resin T _g	provided by supplier	50 – 55 C
Resin mol wt	provided by supplier	60,000

Competitive Comparison

	Techspray 2108-12S	Techspray 2103-12S	Humiseal 1B31	Humiseal 1B73	Loctite 3900	MG 419B	Chemtronics CTAR-12
MIL-I-46058C / IPC-CC-830	YES	YES	YES	YES	NO	NO	YES
UL94 Tested V-0 Rated	YES	NO	NO	YES	NO	NO	YES
Tack-Free Time (minutes)	3	17	9	33	6	10	33
Contains MEK, Toluene, Xylene	NO	NO	MEK, Toluene	MEK, Toluene	Toluene	Toluene, Xylene	MEK
Threshold Limit Value (TLV) - Lower is more hazardous	200	200	50	50	50	50	50
Hardness (Gardner Pencil) - Lower is harder	2B	4B	4B	2B	4B	6B	4B
Adhesion (ASTM D3359) - Higher is better	5B	4B	4B	4B	5B	4B	4B
Observations	High gloss, fast/even level, soft/med spray pattern	Med gloss, even level, soft/med spray pattern	Good gloss, patchy level, good pattern	Good gloss, good level, very wide pattern	Good gloss, good level, med cone pattern	Uneven gloss, orange peel texture, very soft spray pattern	High gloss, uneven spray pattern, large amount of material

Certified Testing

As Cured - Physical	Test Method	2108 Test Results
Dielectric strength	ASTM D-149, IPC-TM-650 2.5.6.1, Rev. A	1000 volts
Adhesion	ASTM D-3359	5B
Film hardness	ASTM D-3363	2B
Film thickness (1 dip)	ASTM D-1005	1 mil (0.001")
UL Qualification	Test Method	2108 Test Results
Coating flammability	UL94/746E	V-0
IPC-CC-830B Qualification	Test Method	2108 Test Results
Appearance	IPC-CC-830B 3.5.2	pass
Fluorescence	IPC-CC-830B 3.5.3	pass
Flammability	IPC-CC-830B 3.5.6	pass
Fungus resistance	IPC-TM-650 2.6.1.1	pass
Flexibility	IPC-TM-650 2.4.5.1	pass
Dielectric withstand voltage	IPC-TM-650 2.5.7.1	pass
Moisture & insulation resistance	IPC-TM-650 2.6.3.4	pass
Thermal shock	IPC-TM-650 2.6.7.1	pass
Temperature humidity ageing	IPC-TM-650 2.6.11.1	pass

Chemical Compatibility – Industrial Chemicals

INDUSTRIAL CHEMICALS	EFFECT	CAS #
Methanol	Soften	67-56-1
Ethanol	Dissolution	64-17-5
IPA	Dissolution	67-63-0
70% IPA	Dissolution	67-63-0
50% Ethanol	No effect	64-17-5
DPM	Dissolution	34590-94-8
Glycol ether EB	Dissolution	111-76-2
THF	Dissolution	109-99-9
Acetone	Dissolution	67-64-1
n-propyl acetate	Dissolution	109-60-4
t-butyl acetate	Dissolution	540-88-5
Hexane	Dissolution	110-54-3
Heptane	Soften	142-82-5
Cyclopentane	Dissolution	287-92-3
Cyclohexane	Dissolution	110-82-7
Toluene	Dissolution	108-88-3
Trans-dce	Dissolution	156-60-5

Chemical Compatibility – Household Chemicals

HOUSEHOLD CHEMICALS	EFFECT	EXAMPLE OF US BRAND NAME
5% Acetic acid	No effect	Heinz Vinegar
0.1N Hydrochloric acid	No effect	Lime-A-Way Toilet Bowl Cleaner
50% Nitric acid	No effect	
Parson's solution	No effect	Windex
0.1N Potassium hydroxide	No effect	10% Liquid Plumber
45% Potassium hydroxide	No effect	Liquid Plumber
d-limonene	Dissolution	Orange Glo
Chlorox neat	No effect	Chlorox
Chlorox 1:1	No effect	50% Chlorox
Chlorox 1:4	No effect	20% Chlorox
Pine-Sol Lemon	No effect	Pine-Sol Lemon
Pro 409	No effect	409 Professional

In most cases, Techspray corporate test methods (TS designation) correspond to standard ASTM Copies of Techspray corporate test methods are available upon request.

Environmental Policy

Techspray® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Packaging and Availability

2108-12S	12 oz. Aerosol, 12/cs
2108-P	1 pint in metal can, 2/cs
2108-G	1 gallon in metal pail
2108-5G	5 gallons in metal pail

Resources

Techspray® products are supported by a global sales, technical and customer services resources.

For additional technical information on this product or other Techspray® products in the United States, call the technical sales department at 800-858-4043, email tsales@techspray.com or visit our web site at: www.techspray.com.

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