Premium Polyurethane Conformal Coating
Technical Data Sheet

5108-Liquid

Description

Our 5108 Polyurethane Conformal Coating is a heat curing one part product that provides an excellent scratch and chemical resistant finish. It is ideal for chemically challenging environments.

The 5108 urethane protects electric circuits against aggressive chemicals, moisture, dirt, dust, thermal shocks, and scratches. This avoids corrosion and physical damages to electric components. It insulates against high-voltage arcing, shorts, and static discharges, allowing for traces to be put closer to one another.

Applications & Usages

The 5108 coating improves reliability , operational range, and lengthens the life of electrical and electronic components and assemblies. It finds application especially for corrosive environments such as those found in the farming, mining, smelting, oil exploration, and marine industries.

Common urethane conformal coatings uses are with electric generators, motors, transformers, relays, and air bag controllers. Commercial applications include fire alarms components, sensors, automotive electronics, electrical connectors, and porcelains.

Benefits

- Water paint—environmental protection, non flammable
- **Excellent finish**—smooth, flexible, mar resistant
- **High Chemical Resistance**—resists water, solvents, and most household chemicals
- **Durable**—abrasion resistant
- **Protects electronics from** moisture, corrosion, fungus, and static discharges
- **Easy to inspect**—fluoresces under black light (UV light)
- **Easy rework and repairs**: Solders through the coat • removable with Cat. No. 7800 stripper

Curing & Work Schedule

Properties	*Value*
Tack Free @25°C @70°C	45 to 60 min 7 min
Full Cure @25 °C	48 h
Shelf Life	1 year
Storage Temperature Limits	15 to + 40 °C

Service Ranges

Properties	*Value*
Service Temperature	-40 to+145 °C
Maximum coverage per liter [b)]	≤ 87 000 cm ^{2}
Maximum coverage per US gallon [b)]	≤332 000 cm^2

Idealized estimate based on a coat thickness of 50 μm [2.0 mil]

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Chemical Components

Name
Polyurethane Resin
Water

Properties of Cured

Physical Properties	*Method*	*Value*
Color	Visual	Clear
Solderability	—	Good
Chemical Resistance	—	Excellent
Weather Resistance	—	Excellent
Fungus Resistance	IPC-TM-650 2.6.1.1	Excellent
Flexibility	IPC-TM-650 2.4.5.1	Good
Electric Properties	***Method***	***Value***
Dielectric Withstand Voltage	per IPC-TM-650	>25000 V
Insulation Resistance (after 24 hours)	IPC-TM-650 Test 2.6.3.4	$4\times 10^{12}\ \Omega$

Properties of Uncured

Physical Property	*Method*	*Value*
Odor	—	Mild
Viscosity @25 °C	Brookfield SP1	152 cP
Density	ASTM D 1475	1.05g/ml
Solids Content (w/w)		41.0%

Compatibility

The 5108 polyurethane coating is compatible with most materials found on printed circuit assemblies; But, it is extremely important to clean the printed circuit assembly thoroughly with a suitable electronic cleaner before applying the coating.
The chosen electronic cleaner should remove moisture, wax, greases, oils, and all other contaminants that are known to cause defects in this type of conformal coating.

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Health, Safety, and Environmental Awareness

Please see the 5108 - Liquid **Material Safety Data Sheet** (MSDS) for more details on transportation, storage, handling and other security guidelines.

Environmental Impact: The volatile organic content is 55.2% (534 g/L) by EPA and WHMIS standards.

RoHS COMPLIANT

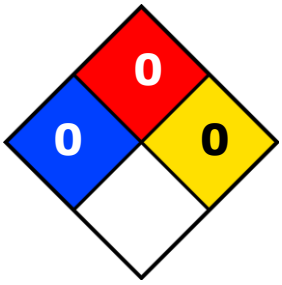
This product meets the European Directive 2011/65/EU Annex II (ROHS); recasting 2002/95/EC.

Health and Safety: The liquid and spray is flammable and should be kept away from flames and other ignition sources. As with most paint materials, avoid breathing in fumes or direct contact with the material.

HMIS® RATING

HEALTH:	**0**
FLAMMABILITY:	**0**
PHYSICAL HAZARD:	**0**
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Wear disposable gloves. Wash hands thoroughly after use.
The cured coating presents no known hazard.

Spray Gun Application Instructions

Follow the procedure below for best results.

To apply the required thickness by weight

1. Mix thoroughly, and spray a test pattern.
   This step ensures good flow quality and helps establish appropriate distance to avoid runs.
2. At a distance of 20 to 25 cm (8 to 10 inches), hold the gun at around 45°, and spray a thin and even coat onto the horizontal board. For best results, use spray-and-release strokes with an even motion to avoid excess paint in one spot.
3. Before the next coat, rotate the board 90° to ensure good coverage.
4. Wait at least 15 minutes, and spray another coat. The delay avoids trapping solvent between coats.
5. Apply other coats until desired thickness is achieved. (Go to Step 3)
6. Let dry for 25 minutes at room temperature.

To accelerate cure by heat

- Put in oven or under heat lamp at ≤80 °C for 18 hours.

Packaging and Supporting Products

Cat. No.	Form	Net Volume		Net Weight	
5108-1L	Liquid	0.9 L	32 fl oz.	0.92 kg	2.0 lb
5108-4L	Liquid	3.8 L	1 gal	3.69 kg	8.1 lb
5108-20L	Liquid	20.0 L	5 gal	18.43 kg	40.6 lb

Technical Support

Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions are located at www.besttec.us .

Email: support@besttec.us

Warranty

Besttec Chemical Ltd. warranties this product for 12 months.
Besttec Chemical Ltd. makes no claims as to shelf life of this product for the warranty. The liability of *Besttec Chemical Ltd.* whether based on its warranty, contracts, or otherwise shall in no case include incidental or consequential damage.

Disclaimer

This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. *Besttec Chemical Ltd.* does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

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Appendix A

Standards Qualification

Qualification Criteria	*Test Method*	*Results*
Qualified IPC-CC-830B*		
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 and Insulation Resistance	IPC-TM-650 2.6.3.4	pass
Thermal Shock	IPC-TM-650 2.6.7.1	pass

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Qualified independently by Pacific Testing Laboratories, Inc.

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