Coval Molecular Coatings

1391 Skillman Lane, Petaluma CA 94952

CIRCUIT COAT

DATA SHEET

DESCRIPTION

Coval Circuit Coat is a 2 part clear nonconductive coating for circuitry. Coval Circuit Coat is designed to replace standard conformal coatings and to provide protection of most circuits, PCBs, and electrical components from the damaging effects of moisture intrusion, corrosion, dirt and sand.

SURFACE

Circuitry, PCBs, and electrical components.

SOLUTION

Moisture, dirt and corrosion.

CHARACTERISTICS

Color: Clear
Finish: Gloss
Vehicle Type: Solvent Base
Flash Point: (C Penskey-Martens closed Cup) -9C/15F
VOC: less than 100 g/L
Weight per Gallon: 7.36 lb
Non-breathable
REQUIRES PART #B CATALYST

SPREAD RATE

Recommended Spread Rate per coat:

Wet mils:	2.0-3.0
Dry mils:	0.7-1.0

COVERAGE

500-800 sq.ft./gal. Coverage will vary depending on the porosity and texture of the substrate.

SURFACE PREPARATION

Coval Circuit Coat will not adhere to silicone coated surfaces. All circuits and electrical components must be clean and free of contaminates prior to application. Use circuit manufacturer's cleaning recommendations and approved cleaners to avoid damaging the circuits or electrical components. Make certain circuits or components are completely clean and dry prior to application.

APPLICATION INSTRUCTION

Test Area

Coval Circuit Coat can be applied to many, but not all types of circuits and electrical components. It is critical to test for adhesion, performance and compatibility on a test component prior to full-scale application.

Application

Coval Circuit Coat is a two component product consisting of 1:1 Coval Circuit Coat and Coval Catalyst. It is a non-conductive quartz matrix. It can be applied by spraying or dipping. It is not designed to be removed (permanent). With either method of application, always mask off connection terminals and any adjacent surfaces to keep them free of drips or accidental coating. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, 90% RH or less, and that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Also make certain there will be no additional morning dew to make the surface damp again after it has dried.

Spraying

Coval Circuit Coat is a 2 component product requiring PART#B CATALYST When surface preparation is complete and surface is dry and free of contaminates, Shake the container of Coval Circuit Coat thoroughly as the nano particles will sink to the bottom, these need to be re-suspended in order for proper performance of the coating, then pour the desired amount into a clean container large enough to allow for an equal amount of the Coval Catalyst to be added. Then pour an equal amount of the Coval Catalyst into the container with the Coval Circuit Coat. Stir both components together thoroughly. Approximately every 15-20 minutes re-stir to re-suspend the nano particles during the coating process. Using a high volume, low pressure (HVLP) spray gun with an approximately 1.4 size tip and the pressure set at approximately 25 psi. Spray the component up and down, right and left, approximately 6-8 inches off the surface. Apply only one coat.

CAUTION: If using spray application method, use an approved spray booth. If spray booth is not available, make certain to tent off the area being sprayed with plastic tarps to avoid spray dust from traveling and contaminating other surfaces with overspray dust. Tented and enclosed areas should always be positively supplied with fresh air and have ventilated exhaust to outside using fans. (In enclosed areas make sure to have an observer watching the applicator for any signs of physical distress.)

Never spray near any open source of ignition such as pilot light flames, or anything that may spark, as this may cause ignition and explosion of the fumes and vapors.

When spraying outdoors, make certain there will be no rain for at least 5 hours after your anticipated completion time. If there is high wind this can disrupt the spray pattern from your HVLP. It can also contribute to contamination of the coating with blowing dust. It may be necessary to erect a wind screen to protect the area prior to beginning the coating application.

Dipping

When surface preparation is complete and surface is dry and free of contaminates, open the cans of Circuit Coat and Catalyst. Stir Circuit Coat thoroughly to re-suspend the nano particles that have settled to the bottom. Make certain to re-stir every 15-20 minutes to ensure proper performance. Stir slowly to avoid creating air bubbles, which can affect the performance of the coating. In a separate clean container large enough to hold equal parts of Circuit Coat and Catalyst, pour in the appropriate amount needed for the project and stir to thoroughly combine. Pour the mixture into a high density plastic (HDP) tray deep enough to cover the circuit or component being dipped. If several components are

going to be dipped put a blanket of nitrogen gas over the dipping pan to prevent solvents from flashing off. Completely submerge the desired area of circuitry. Let sit approximately 1 minute, then gently as to not create air bubbles, move item back and forth and up and down to ensure complete saturation. Remove item allowing excess coating to drip back into tray. Coating wet film thickness (WFT) should be approximately 2.0 to 3.0. Once the coating dries, it is designed to repel everything, including a second coating of Circuit Coat. Allow to cure for 7 full days before exposing to corrosion or moisture conditions.

DRY TIME

Drying Time (@ 77 F, 50% RH):
Drying time is temperature and humidity dependent.
Touch: 2-3 hours
Through: 3-5 hours
Dry: 24 hours
Full Cure: 7 Days

CLEAN UP

Clean tools and flush equipment with acetone thoroughly before product dries.

CAUTION

Always wear OSHA approved 1910.134 and ANSI Z88 2 respiratory protection. Fresh air and exhaust should be provided in the work area. If inhaled, remove affected person to fresh air. Call physician immediately if physical difficulties occur. Wear butyl-rubber gloves and other skin protection to avoid contact. In the event of contact with skin, wash skin thoroughly with soap and water. Chemical safety goggles or splash shields are required. Do not wear contacts without eye protection. Immediately flush eyes with water for 15 minutes after contact and get medical attention. If accidentally swallowed, rinse mouth thoroughly, and obtain immediate medical attention.

CARE & MAINTENANCE

CAUTION: Always turn power off before attempting to clean the component. Use a dry cloth to wipe up spills or an air hose to blow off dust. Avoid using liquid cleaners and water around electrical components due to risk of shock or shorting out components that are not coated with the Circuit Coat.

Circuit Coat is a durable quartz coating. However, if damage occurs and there is a breach in the protection, it can be repaired. CAUTION: Turn off power to the damaged piece. Very carefully remove any pieces of loose coating, then carefully abrade just the edges of the damaged or missing coating so the new coating can bond. A small file or 220 grit sandpaper works well. Make sure to not touch any of the circuitry itself. Wipe clean and re-apply Circuit Coat to the area following the application instructions.