miller-stephenson

Product Information

www.miller-stephenson.com

MS-470C
Urethane Conformal Coating

Description:

MS-470C is a non-flammable, solvent-based, one-component polyurethane conformal coating provided in the convenience of aerosol. Our coating provides excellent electrical and barrier properties in a thin-film applications on components and PCBs. When fully cured, the applied urethane coating exhibits superior toughness, abrasion resistance, and excellent moisture and chemical resistance. MS-470C will maintain its properties even after long exposure to the elements with minimal color change. Benefits include:

- Superior toughness and abrasion resistance
- Reworkable and room temperature cure
- Solvent and discoloration resistant
- Fluorescent under UV light
- No cracking or crazing with vibration
- Easier to re-work than epoxy-based coatings

Preparation/Application/Cure Schedule

Note: Performance of the MS-470C and its cured film is dependent on process controls used in the application of the coating. Cleanliness of the substrate is a major factor in promoting adhesion and preventing under-film corrosion. Assemblies must be clean, oil-free, and dry. For specific recommendations please contact our Technical Support Team.

Aerosol Preparation and Room Conditions:

1. Important do not shake can prior to usage. Allow can to warm up to room temperature prior to use. Failure to do so will affect sprayability and can affect coating performance.
2. MS-470C should be applied at room temperature.
3. MS-470C should not be applied where relative humidity is below 30% or above 70%. Ideal room conditions are the following: 50-60% humidity and 70–80 °F.
4. If reusing a previous sprayed aerosol can, invert can to clean valve and perform several test sprays to inspect spray pattern and fluid delivery. If both appear suitable continue with the application process.

Application:

Application should be done in a well-ventilated area. Proper safety equipment and chemical resistant gloves are strongly recommended

1. Hold can 6 – 8 inches away from the assembly and apply a medium-light coating. Coating must be applied wet and allowed to dry on the surface of the assembly.
2. Allow coating to dry for 30-35 minutes at room temperature.
3. Apply 1-2 additional medium wet coats with 30-35 minutes between each.
4. A total cured film thickness of 2 ± 1mil is recommended.
5. Once spraying is complete, immediately invert can and purge the valve and actuator. This will prevent clogging and premature valve failure.
6. Drying and curing of the coating depends upon evaporation of the solvent and subsequent reaction of the polymer with moisture in the air at elevated or room temperatures.

Cure Schedules:

Final film properties can be achieved by either heat acceleration or room temperature.

1. Heat Accelerated: Allow board to air dry for 30-45 minutes prior to placement into the oven.
2. Oven curing must be done at 60-68°C (140-154 °F) at a humidity level of 40-55%. This can be achieved by placing a pan of distilled water in the cure oven one hour before you place the coated assemblies inside.

   NOTE: Failure to provide humidity during the heat accelerated curing program will affect final film performance.
3. Oven cure the coated assemblies for ~ 2hrs.
4. Allow an additional 1 – 2 days at room temperature and 45-55% humidity for final film properties to be developed once removed from the oven.
5. Room Temperature / Air Cure: Allow to cure for 7 days at room 70-80 °F at a relative humidity of 55-65%.
6. Coatings will typically be tack-free in 1 – 4 hours depending on the number coats, coating thickness, and room conditions.

NOTE: The cure schedules above are based on time after the assembly reaches the specific temperatures and are recommendations only. The user is responsible for determining the optimal cure conditions for their application.

Clean-up:

Uncured MS-470C can be removed with aromatic, ketones, or glycol ethers. Removal of cured MS-470C will require Miller-Stephenson MS-114D or MS-115 Conformal Coating Stripper.

Storage:

Aerosol Cans should be kept at 70-77°F and away from direct contact with sunlight.

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General information:

For safe handling information on this product, consult the safety data sheet, (SDS)

Cured Film Electrical Properties: (1.0 - 3.0 mil film)

Dielectric Strength, volts/mil	1200
Dielectric Constant, 10^5 Hz @ 25°C	4.2
Dissipation Factor, 10^5 Hz @ 25°C	0.010
Volume Resistivity (ohm-cm)	2.0×10^{13}

Cured Physical Properties:

Operating Temperature: -67°F/-55°C to 230°F/ 110°C

Appearance: No blistering, wrinkling, cracking, or peeling of film, after thermal shock and moisture resistance testing.

Flexibility: No cracking of film over a 1/8" diameter mandrel.

Fungus Resistance: Non-nutrient per ASTM G21

Fluorescent: Under ultraviolet light.

VOC Content of MS-470C: 882 g/l

NOTE:

The recommendation made here with and the information set forth with respect to the performance or use of our products are believed, but not warranted to be accurate. The products discussed are sold without warranty, as to fitness or performance, express or implied and upon condition that purchasers shall make their own test to determine suitability of such products for their particular purposes. Likewise, statements concerning the possible uses of our products are not intended as recommendations to use our products in the infringement of any patent.

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