



产 品 说 明 书

Product Instruction

产品名称：

三防漆

Product Name:

Conformal Coating

产品型号：

M78-3068UV

Product Model:

M78-3068UV

厂商名称：珠海长先新材料科技股份有限公司

Manufacturer: Zhuhai Changxian New Material Technology Co., Ltd.

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M78-3068UV 三防漆

M78-3068UV Conformal Coating

产品描述:

Product Overview:

M78-3068UV 是一款单组分紫外光/湿气双重固化三防漆。本品采用 UV 固化体系，适用于厚膜电路系统、多孔基材及印刷线路板的涂层保护，可保护线路板及相关设备免受环境侵蚀，延长使用寿命并提高安全系数，尤其适用于带有阴影区域的线路板。

M78-3068UV is a single-component, dual-cure conformal coating that cures by ultraviolet light and moisture. This UV-curable system is designed to protect thick-film circuit systems, porous substrates, and printed circuit boards. It helps shield circuit boards and related equipment from environmental attack, extend service life, and improve operational safety. The secondary moisture-cure mechanism makes it particularly suitable for assemblies with shadowed areas.

产品特性:

Product Features:

- UV/湿气双重固化。
- 气味低，无刺激性或令人不愉快的气味，不含苯类、丙酮等有毒物质。
- 具有防潮、防霉、防盐雾、绝缘、耐酸碱、耐硫化、耐高温高湿及耐冷热冲击性能。
- 快速固化，无 VOCs，无 HAPs。
- 带荧光示踪功能，便于涂覆检测。
- 阻燃等级 UL 94 V-0。
- 符合 RoHS、REACH 及 HF（无卤）等环保要求。
- 固化后形成坚韧、耐磨的表面涂层。
- Dual UV/moisture cure.
- Low odor, with no irritating or unpleasant smell; contains no toxic substances such as benzene or acetone.
- Provides resistance to moisture, mold, salt spray, acids, alkalis, sulfurization, high-temperature/high-humidity exposure, and thermal shock, while delivering electrical insulation.
- Fast curing; VOC-free and HAP-free.
- Fluorescent tracer for convenient coating inspection.
- Flammability rating: UL 94 V-0.
- Complies with RoHS, REACH, and HF (halogen-free) environmental requirements.
- Cures to form a tough, abrasion-resistant surface coating.

产品参数:

Product Parameters:

项目 Item	单位 Unit	参数值 Value	检测方法/条件 Test Method/Condition
外观 Appearance	—	无色至淡黄色透明液体 Colorless to pale-yellow transparent liquid	目视 Visual inspection
不挥发份 Non-volatile Content	%	100	—

项目 Item	单位 Unit	参数值 Value	检测方法/条件 Test Method/Condition
密度 Density	g/cm ³	1.0-1.1	GB/T 13354-92
粘度 Viscosity	mPa·s	180 ± 30	GB/T 1723-1993
UV 固化条件 UV Curing Dose	mJ/cm ²	1,000-2,000	320-405 nm
湿气固化条件 Moisture-cure Time	h	24-72	25°C, 50% RH 25°C, 50% RH
储存时间 Storage Period	月 months	6	0-30°C 0-30°C

固化后性能:

Cured Properties:

项目 Item	单位/条件 Unit/Condition	参数值 Value	检测方法 Test Method
硬度 Hardness	Shore D	75-90	GB/T 531.1
拉伸强度 Tensile Strength	MPa	22	GB/T 528
断裂伸长率 Elongation at Break	%	4	GB/T 528
吸水率 Water Absorption	%	≤0.3	—
体积电阻率 Volume Resistivity	Ω·cm	2.6×10^{16}	GB/T 1692
介电强度 Dielectric Strength	kV/mm	75	GB/T 1693
介电常数 Dielectric Constant	1 MHz	3.25	GB/T 1693
介电损耗因子 Dielectric Dissipation Factor	1 MHz	0.01	GB/T 1693
附着力 Adhesion	百格测试 Cross-cut test	0 级 Grade 0	GB/T 9286-1998 Paints and varnishes - Cross-cut test

项目 Item	单位/条件 Unit/Condition	参数值 Value	检测方法 Test Method
耐盐雾性 Salt Spray Resistance	35°C、5% NaCl 溶液、172 h 35°C, 5% NaCl solution, 172 h	无起泡、脱落、起皱等不良现象，底材无腐蚀 No blistering, peeling, wrinkling, or other defects; no substrate corrosion	GB/T 2423.17-2008 Test Ka
高温高湿老化测试 High-temperature/High-humidity Aging	85°C、85% RH、10 天 85°C, 85% RH, 10 days	漆膜无起皱、粉化、剥离、逆转成液态等现象 No wrinkling, chalking, peeling, or reversion to a liquid state	企业标准 Company standard
高低温冲击测试 Thermal Shock	-45°C/30 min、135°C/30 min， 循环 100 个周期 -45°C/30 min and 135°C/30 min, 100 cycles	漆膜无起层、皱皮、起泡、脱落、开裂等现象 No delamination, wrinkling, blistering, peeling, or cracking	IPC-CC-830B-2002

以上数据仅作为产品测试标准值，仅供参考。本公司对因测试条件不同或产品改进而产生的数据差异不承担相关责任。
The above data are standard product test values and are provided for reference only. The company assumes no responsibility for variations resulting from different test conditions or product improvements.

使用温度范围及环保要求:

Service Temperature Range and Environmental Requirements:

- 固化产物通常在 -55°C 至 +125°C 的温度范围内使用；根据具体应用，其他限制条件可能更为合理。
- 符合 RoHS、REACH 要求。
- Cl、Br 含量均 <700 ppm。
- The cured product is typically used from -55°C to +125°C. Depending on the application, other operating limits may be more appropriate.
- Complies with RoHS and REACH requirements.
- Both chlorine (Cl) and bromine (Br) contents are below 700 ppm.

工艺及注意事项:

Application Procedure and Precautions:

- 1、清洁表面:** 为获得最佳粘接性能，被涂覆表面必须干燥，并且无灰尘、油脂及其他污染物。
 - 2、施胶:** 可采用喷涂、浸涂或刷涂方式。使用前应进行应用测试，以确认适合的施工条件。
 - 3、固化:** 紫外线固化速率取决于固化灯强度、光源与胶层的距离、所需固化深度或胶层间隙，以及基材的透光率。使用波长范围为 320-420 nm 的 UV 光或可见光。
- 1. Surface Preparation:** For optimum adhesion, the surface to be coated must be dry and free from dust, grease, and other contaminants.
 - 2. Application:** The coating may be sprayed, dipped, or brushed. Conduct an application trial before use to establish suitable process conditions.
 - 3. Curing:** The UV cure rate depends on lamp intensity, the distance between the light source and the coating, the required cure depth or coating gap, and the light transmission of the substrate. Use UV or visible light in the 320-420 nm wavelength range.

UV 固化灯适应性:

UV Lamp Suitability:

固化灯类型 Curing Lamp Type	UV 固化灯 UV Curing Lamp	UV 固化灯 UV Curing Lamp	UV 固化灯 UV Curing Lamp	UV 固化灯 UV Curing Lamp
波长 [nm] Wavelength [nm]	320	365	395	405
适应性 Suitability	- Unsuitable	++ Highly suitable	+ Suitable	- Unsuitable

典型固化性能:

Typical Curing Performance:

典型固化性能 Typical Curing Performance	推荐时间 Recommended Time
推荐 UV 固化条件: 高压汞灯, 光强 30-50 mW/cm ² Recommended UV Cure: High-pressure mercury lamp at 30-50 mW/cm ²	20-25 s 20-25 seconds
推荐湿气固化条件: 25°C、70% RH Recommended Moisture Cure: 25°C, 70% RH	72 h 72 hours

上述为推荐固化条件。实际固化条件可能因客户经验、应用要求及固化设备而有所不同。为使暴露表面达到干性固化, 需要较高的紫外线光强 (最低 500 mW/cm²); 采用 1,000 mW/cm² 的汞灯或无极灯固化, 通常可获得更好的表干效果。阴影区域采用湿气固化, 推荐至少 2-3 天 (25°C/50% RH); 温湿度越高, 固化时间越短, 反之则越长。

These are recommended curing conditions. Actual conditions may vary according to the customer's experience, application requirements, and curing equipment. A relatively high UV intensity (minimum 500 mW/cm²) is required to obtain a dry exposed surface. A 1,000 mW/cm² mercury lamp or electrodeless lamp generally provides better surface-dry performance. Shadowed areas cure by moisture; at least 2-3 days at 25°C and 50% RH is recommended. Higher temperature and humidity shorten the cure time, while lower conditions lengthen it.

注意事项:

Handling Precautions:

- 本产品对紫外线敏感, 在贮存和操作过程中应尽量避免暴露于日光、紫外线和人造光源。
- 施胶完成后, 应立即拧紧未用完产品的容器盖并密封保存。再次使用时, 如封口处有少量结皮, 去除后即可正常使用。
- This product is sensitive to ultraviolet light. During storage and handling, minimize exposure to sunlight, UV light, and artificial light sources.
- After application, immediately tighten the cap on any remaining product and store it in a sealed container. If a small skin forms at the opening before the next use, remove it; normal use will not be affected.

包装规格及运输:

Packaging, Storage and Transportation:

1、包装: 1 L/桶, 4 L/桶。

2、贮存: 避光、阴凉、干燥、通风环境中密封保存。保质期一般为自生产之日起 6 个月; 超过保存期限的产品应确认无异后方可使用。

3、运输：此类产品按特殊化学品运输，运输过程中应遵守国家法令法规。

1. Packaging: 1 L/pail and 4 L/pail.

2. Storage: Store tightly sealed in a dark, cool, dry, and well-ventilated area. The typical shelf life is six months from the date of manufacture. Product beyond the shelf-life period may be used only after confirming that no abnormality is present.

3. Transportation: Transport as a special chemical product and comply with applicable national laws and regulations during transportation.

安全操作须知：

Safe Handling Instructions:

本产品可能对皮肤敏感者产生致敏作用，应避免与皮肤直接接触。若不慎接触，请用肥皂和水清洗。具体方法详见本产品化学品安全说明书（MSDS）。

This product may cause sensitization in individuals with sensitive skin. Avoid direct skin contact. In case of accidental contact, wash with soap and water. Refer to the product Material Safety Data Sheet (MSDS) for detailed instructions.

温馨提示：

Please Note:

- 由于我们的产品会持续优化和改进，本手册中的相关信息可能会根据实际情况进行调整，不另行通知。如需获取最新版本或了解更多信息，欢迎随时联系我们的销售团队。
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