

# Tpcm 780SP Directions for Use

## Tpcm 780SP 使用说明

### Application Guide

### 应用指导

- Mix well by hand or jar roller before using. **Do not use high-shear mixing because it will result in accelerated solvent evaporation and high viscosities.**  
使用前，用手或罐式滚轴搅拌器混合均匀。不要使用高剪切混合方法混合，因为它会导致溶剂加速挥发和粘度升高。
- If a grainy appearance is seen, heat the can for 1 hour at 40°C, then stir with a stir stick for 1-2 minutes or until smooth.  
如果看到颗粒状的外观，在 40°C 下加热 Can 1 小时，然后用搅拌棒搅拌 1-2 分钟或直到光滑。
- Ensure the surface of the substrate is clean prior to application using an approved cleaning solvent (toluene, acetone, or isopropyl alcohol).  
确保基板表面是干净的，优先使用已经认可的清洁溶剂（甲苯、丙酮或异丙醇）。
- Apply a uniform coating 0.002-inches (0.05mm) to 0.010-inches (0.25mm) thick.  
应用时，涂层厚度保持在 0.002 英寸（0.05mm）到 0.010 英寸（0.25mm）厚度之间。
- For high volume applications screen-printing is recommended. When screening, best results are achieved with a 61 (or less) threads per inch (TPI) screen. Keep lid on container when not actively using material. If container is left open, the viscosity will increase due to solvent loss, potentially resulting in application defects.  
大容量使用方案，推荐使用丝网印刷，当使用丝网印刷时，丝网规格推荐使用在每英寸小于等于 61 丝(TPI)。当不使用材料时，保持上盖盖紧，如果罐子保持开盖状态，那么由于溶剂的减少会导致粘度会升高，可能会造成潜在的应用方面的问题。
  - **Do not add additional solvent to thin material.**  
请勿在材料中加入额外的溶剂。
  - Do not leave material on screen when not in use. Use all material as soon as possible and clean screen when finished.  
非使用期间，请勿将材料留在丝网上面，应尽量在短时间内用完丝网上面的材料，印刷完成后，把丝网清理干净。
  - Material surface will be dry to the touch after approximately 2 hours at 60°C or 8 hours at room temperature depending on the environment.  
经过 60 摄氏度约 2 小时烘烤或者在室温约 8 小时后（取决于环境），材料表面会变干燥。
  - **Ensure drying process is complete prior to assembly of components.**  
在组装组件之前，确保已完成烘烤工艺。
- Measure final coating thickness as the thickness of the screen may not translate to coating thickness.
- 因为丝网的厚度不能转化到等量的涂层的厚度，需要测量最终的涂层厚度，
  - In most cases allow for up to a 20% thickness reduction due to solvent evaporation and up to 20% material retention on the screen (varies by application).  
在大多数情况下，在丝网印刷时，由于溶剂的蒸发，允许高达 20% 的厚度衰减和保留高达 20% 材料留存（取决于不同的应用场景）
  - Example: Screen thickness = 0.3mm, 20% retain on screen = 0.24mm, 20% reduction as solvent evaporates = 0.19mm  
例如：丝网的厚度=0.3mm，印刷后衰减 20%，材料厚度=0.24mm，再由于溶剂的蒸发导致减少 20%，最终厚度=0.19mm。
- Place dust cover over material immediately after application to avoid contamination of the surface.  
印刷完成后，需要立即把材料放置防尘罩，从而避免产品表面的污染。
- Once the pcm is applied to a substrate, keep between 15°C and 35°C and less than 50% humidity for a maximum duration of 6 months.  
TPCM 材料被应用到基板表面后，存储条件应在温度 15°C 到 35°C 之间，最大湿度 50% 以内，持续保存 6 个月。

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- After assembly of the heat sink to the heat generating component, ensure that the heat sink side reaches a minimum of 60°C for at least 3 minutes while under pressure to ensure a thin bond line thickness (BLT) is achieved for the best thermal transfer.  
在散热器和器件组装完成后，确保在压力作用下，散热器这面达到最小 60°C 持续至少 3 分钟，确保薄薄的材料层达到最好的导热效果。
  - Best performance is achieved when using a constant pressure application such as springs. A minimum pressure of 5psi is recommended. Optimum thermal performance is reached at a pressure of 15 psi or greater and a temperature of 50°C or greater.  
恒压的条件（譬如弹簧），有助于材料达到最优的热性能。推荐使用不低于 5PSI 的压力。15PSI 及以上的压力，在 50°C 或者更高的温度条件下，会达到最佳的导热性能。

#### Storage and handling recommendations:

##### 储存和处理建议：

- Store cans between 15°C- 35°C with lid tightly sealed. 罐子需在 15C-35° C 下储存，盖子密封紧密。
- If stored below room temperature stabilize to room temperature prior to opening can to avoid condensation forming inside the can. 如果储存在室温以下，在打开前稳定到室温，可避免水在罐子里凝结。
- Tpcm 780SP has a 12 month shelf life from date of mix in the original unopened container. Customer will not receive material with less than 50% shelf life remaining. 未开封的 Tpcm 780SP 自材料混合日期算起，保质期为 12 个月。客户不会收到剩余保质期少于 50% 的材料。
- Keep lid tightly closed when not in use. Keep can and can lip clean to ensure a tight seal.  
材料非使用期间，需要盖紧盖子，罐身和盖子必须处于干净状态，以确保有效的密封。
- Use entire can once opened to avoid thickening of the material due to solvent evaporation OR remove desired amount of material and tightly replace lid right away.  
为了避免开罐后由于溶剂蒸发应该避免材料增稠，一旦开盖，需要用完整罐材料，或者是取出预期数量的部分材料并且马上替换盖子盖紧。
- Only remove amount of material that will be used immediately. Excess material that is not used may thicken as solvent evaporates. Do not put excess material back into can. Instead it should be discarded.  
材料取出后，需要立即使用，请勿重新放入罐内。未使用的材料，必须要报废处理。

#### Rework:

##### 返工操作：

Tpcm 780SP allows for removal of the heat spreader/sink at room temperature. For faster clean up, scrape away any large residual material amounts with a plastic spatula or a wooden tool. Using a clean dry rag to wipe away residual material also works well. Clean residue with toluene, acetone, isoparaffinic hydrocarbon – Isopar, Soltrol (trade names) or isopropyl alcohol.

在室温下允许从加热片或者散热器上移除本材料，为了快速的清理，使用塑料刮刀或者木制工具刮除一些残留的大部分材料，也可以使用清洁干燥的布擦除残留的材料。然后使用甲苯，丙酮，异烷烃溶剂（贸易品名字）异丙醇等清理残留。

#### First Aid:

##### 急救方面：

Safe handling, disposal, and first aid measures are included in the SDS. Please read the SDS before using or handling this product. For further questions, please contact Laird.

安全处理方面，需要参看 TPCM780SP 的 SDS 中的急救处理措施，请在使用和处理这个产品前查看该材料的 SDS 文件。对于更深入的问题，请联系莱尔德。