

# PLUS 乳胶膜板干燥

## 操作指南

该指南为 PLUS 光敏膜板乳胶的涂布操作提供具体的步骤说明。

**目的** – 连续制作高质量膜板以满足全网板印刷需求。

### 建议：

**感光与搅拌混合** - PLUS 乳胶分为两类：预感光乳胶和重氮感光剂乳胶。产品附带的重氮粉包用于向乳胶直接添加重氮粉末而无需预先兑水溶解，这样能够保证达到生产商的控制粘度从而获得最佳涂布效果。应使用剪刀剪开重氮粉包以确保粉包开口平滑。

握住粉包并在乳胶表面上方 1-2 公分处将粉包内的粉末均匀洒向乳胶。用木板或塑料板（切勿使用金属板）在重氮粉末内“翻折”搅拌，使粉末与乳胶混合以尽量减少粉末损失。然后对乳胶进行充分搅拌。

**重要提示：**乳胶在使用之前至少应静置感光 24 小时，确保重氮完全溶解和乳胶脱气。



罐装光敏聚合物乳胶在初次使用之前也需要搅拌混合，因为罐内的物质可能在储存期间产生少许沉淀。

**人工或自动涂布** - 无论采取人工还是自动操作都能实现良好的涂布效果，但自动涂布机的稳定性通常要高于人工涂布。涂布机主要适合于大尺寸网板或多个相同尺寸网板的涂布操作。

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## 选择刮槽 –

为了达到理想的涂布效果，选择并使用合适的刮槽至关重要。根据所需要的存胶量，可以选择直边或圆边刮槽。与圆边刮槽相比，直边刮槽的存胶量要小很多。应定期检查刮槽的刮胶边是否存在裂痕或不规则形状，刮槽损坏后须立即更换。

**涂布技术参数** - 涂布压力、角度和速度都会影响网板上的乳胶沉积量。涂布技术参数说明：

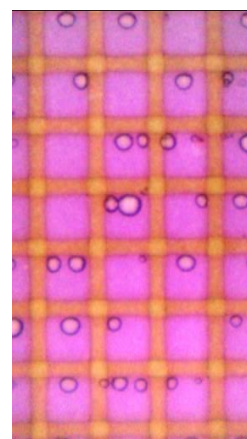
**压力** – 恒定压力比绝对压力更加重要。施加足够的压力，确保刮槽边缘与丝网在整个涂布过程中保持良好接触。对高粘度乳胶应施加较大的涂布压力以防止乳胶“积聚”在网板中心。由于乳胶粘度不同，刮槽边缘处的丝网有 1-3 公分弯曲属于正常现象。

**角度** – 正常角度范围：水平方向呈 15°–30°角。保持角度恒定不变，这一点至关重要。很多刮槽的堵头形状都已设计成正确的角度。

**速度** – 应尽量降低涂布速度以减少进入丝网孔眼的空气量。丝网孔眼越大、乳胶越厚，相应的涂布的速度也要越慢。采用人工慢速涂布时应注意避免在丝网上划出抖动线条。右图：涂布过程中夹入的空气。涂布速度的大致范围为 80 - 300公分/分钟，实际速度取决于乳胶粘度。

**重要提示：**刮槽内乳胶深度的微小变动会导致涂布厚度发生明显变化。对于四色网点印刷等对涂布厚度有严格要求的印刷类型，在涂布同一网板时，刮槽的乳胶填充深度应保持一致。

涂布结束后应立即将涂布边缘擦拭干净。



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**涂布方案** - 涂布次数和涂布方式能够有效控制粗糙度(Rz)和膜板乳胶沉积量(EOM)。网板印刷应用的主要目的是在印刷面制作出扁平而纤薄的膜板表面，在刮刀面形成纤薄的乳胶固化层。刮刀面的多次湿涂会形成膜板基体，而印刷面纤薄的表层涂胶则能保证膜板的平整光滑。



人工涂布标准方案：先在网板的印刷侧涂布 1 或 2 层底胶，当底胶“充满”丝网时立刻在刮刀面涂布 1 或 2 层乳胶。

该操作可通过丝网将湿乳胶压回至印刷面，仅在刮刀面留下纤薄的密封层。使用涂布机可同时对网板两侧进行涂布，因此生产效率较高，需要注意的是最后一层底胶必须涂在刮刀面。

虽然涂布方案还涉及到网框尺寸、丝网目数、图像要求等其它因素，但涂布时必须遵守从印刷面开始、在刮刀面结束这一基本要求。

**表层胶** - 各种类型的乳胶都会在干燥期间因水分蒸发而发生收缩现象，当收缩到丝网纤维周围时便会形成不均匀表面。表层胶涂布是为了填补印刷面不均匀乳胶面的空缺，形成平整的膜板表面（低 Rz 值）以减少印刷过程中的锯齿形状。表层胶涂布仅适用于完全干燥的网板。一般情况下需要 2 次表层胶涂布处理，然后再次干燥网板。如果需要更低的 Rz 值，可以增加表层涂胶次数。某些配有红外干燥器的涂布机可在涂布操作期间进行干燥处理，并将表层胶涂布程序纳入到连续生产过程中。

**重要提示：**对于要求较高的应用，可采用直边与圆边刮槽相结合的涂布方式。底层胶使用圆边刮槽，表层胶使用直边刮槽。这种方式能够降低表面粗糙度(Rz)并且不会造成明显的膜板乳胶沉积量(EOM)增加。

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**干燥** - 乳胶网板必须水平干燥并保持印刷面朝下。若垂直放置网板，乳胶可能会在干燥之前向下流淌并形成“幕帘”状凝胶。为了获得最佳效果，应使用干热空气(35°C, 10% RH)彻底干燥网板。干燥是网板制作过程的关键步骤，更多详细信息请查看我公司网站 [macdermid.com/autotype](http://macdermid.com/autotype) 的“干燥操作指南”。

**膜板乳胶沉积量(EOM)检测** - 膜板乳胶沉积量检测对保持连续稳定的网板印刷十分重要，即使沉积量存在 $\pm 1\mu$  的微小误差也会对湿墨沉积造成明显影响。涂布厚度手持检测仪是一种简单易用的检测设备，测量聚酯纤维丝网时可以即时显示厚度值。



**膜板粗糙度(Rz)检测** - 粗糙膜板 (高 Rz 值) 会影响印刷质量，因此有必要对 Rz 值进行检测。目前市场上出售的便携式粗糙度检测仪的种类很多，测量膜板表明粗糙度时都可以即时显示结果。



**超厚膜板涂布** - 有一种专门用于超厚膜板(>200 $\mu$ )涂布的特殊技术。更多详细信息请访问我公司网站 [macdermid.com/autotype](http://macdermid.com/autotype) 的超厚膜板制作“操作指南”

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