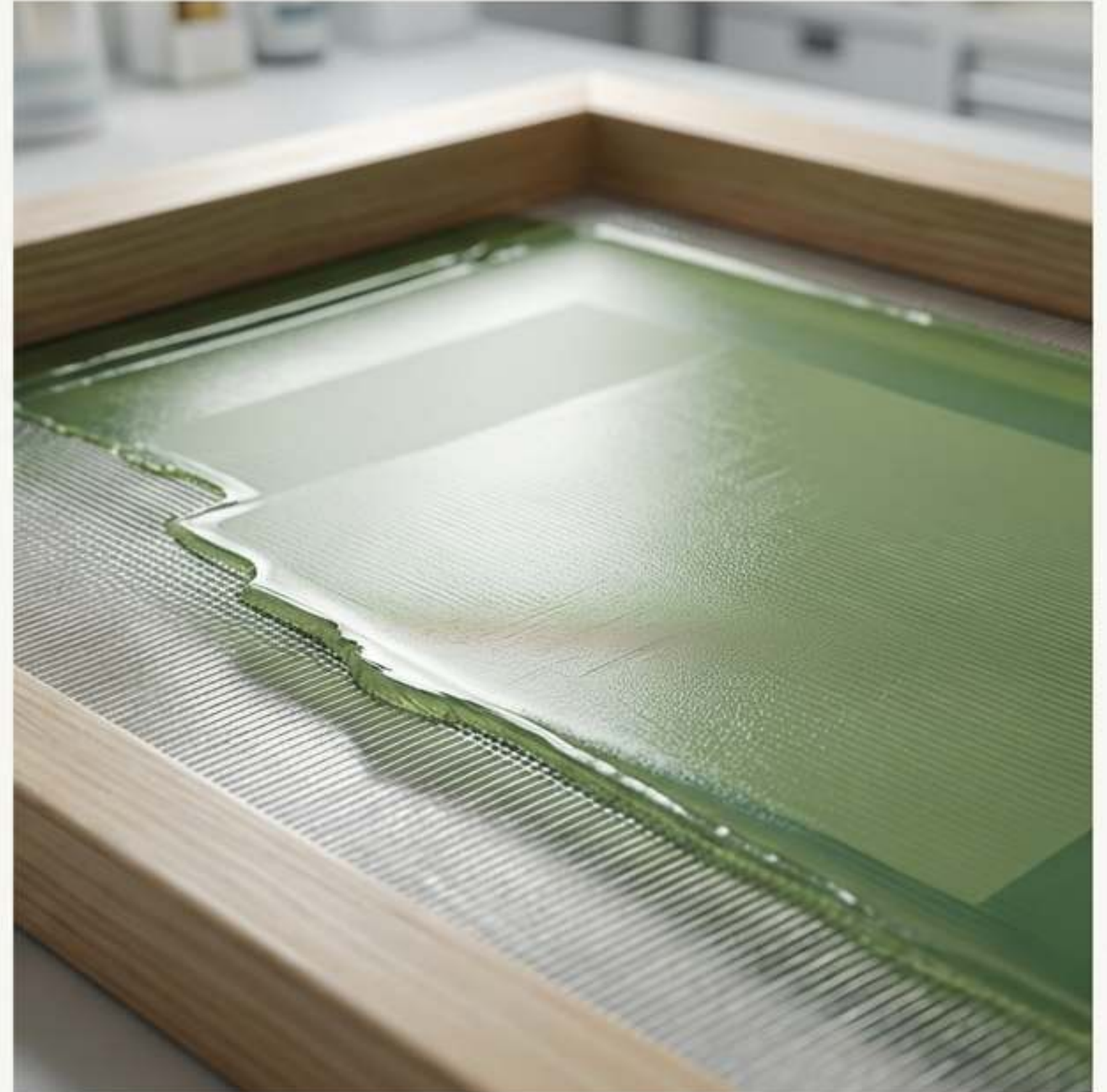


A Master's Guide to Screen Printing Emulsions

Understanding the journey from Diazo to SBQ Photopolymer is key to optimizing your workflow, quality, and output.

This guide provides the insights to choose the right emulsion.

-  Diazo
-  Dual-Cure
-  SBQ Photopolymer



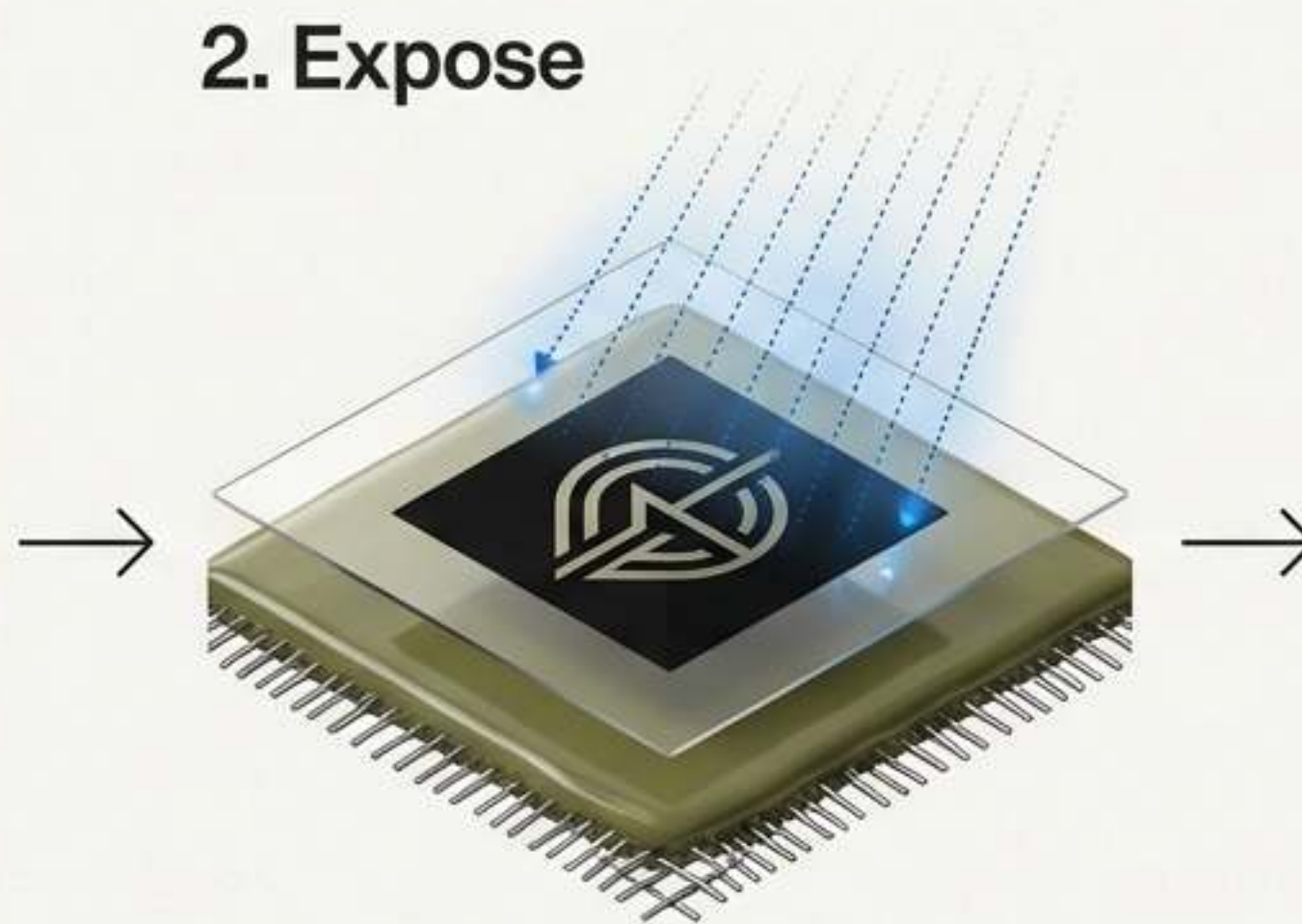
The Heart of the Stencil: What is Emulsion?

Screen printing emulsion is a light-sensitive coating applied to a screen. When exposed to UV light, it hardens, creating a stencil for your design.

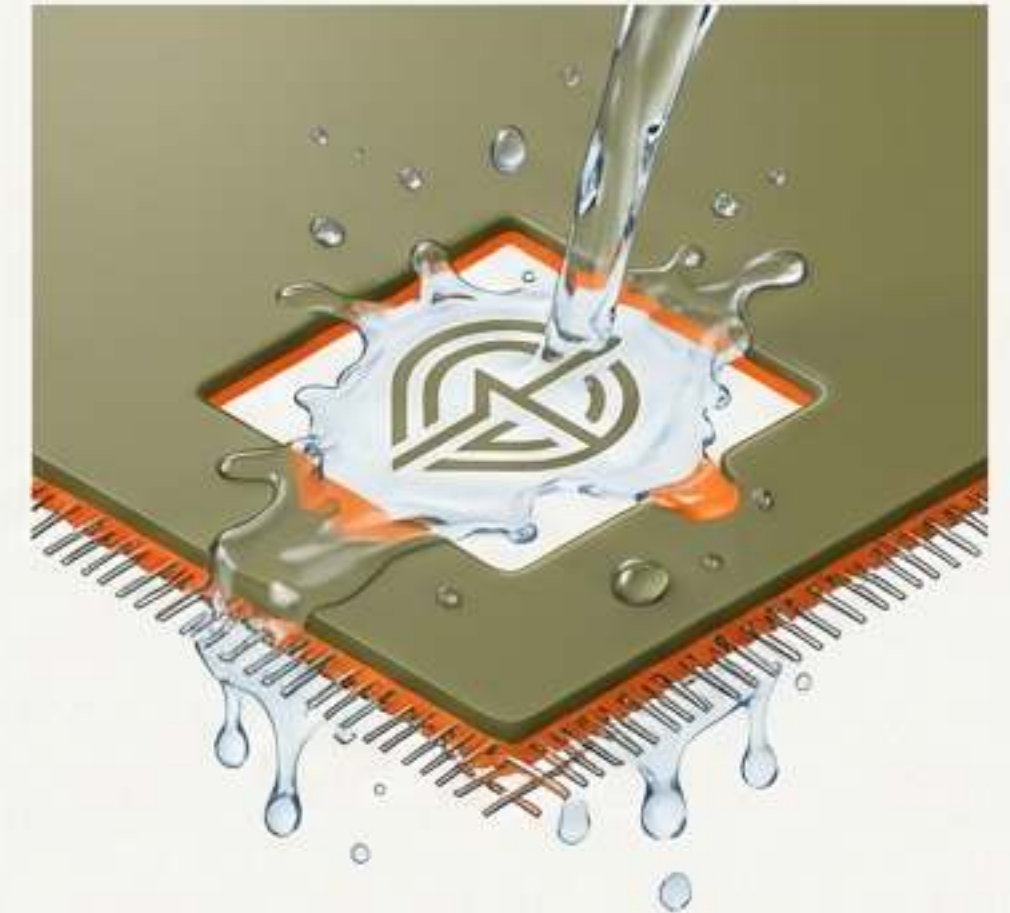
1. Coat



2. Expose



3. Washout

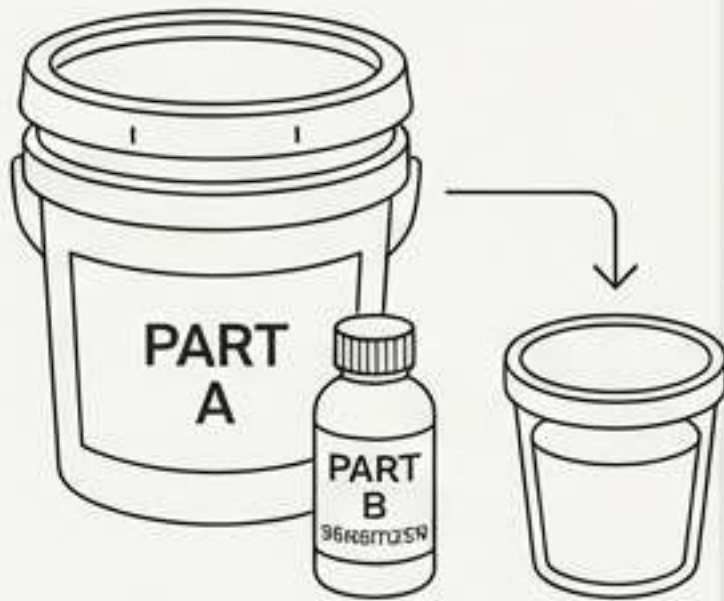


Key Takeaway: The choice of emulsion directly impacts **exposure time**, **image detail**, **stencil durability**, and ultimately, your **print quality** and **efficiency**.

The Original Workhorse: Diazo Emulsion

Introduced in the mid-20th century, Diazo was once the industry standard. While cost-effective, its limitations paved the way for more advanced alternatives.

Key Characteristics



- **Composition:** A two-component system requiring a sensitizer to be mixed in.
- **Cost:** Low. The most budget-friendly option.
- **Shelf Life:** Short. 30-45 days after mixing.
- **Exposure Time:** Moderate to long.

Voice of the Master



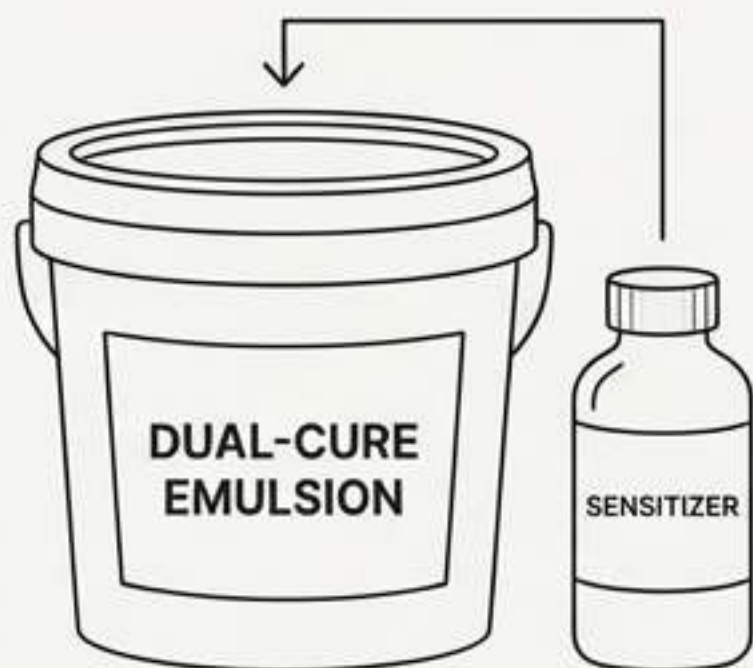
“While Diazo emulsions are cost-effective, their shorter shelf life and longer exposure times make them less practical for high-volume production.”

– Industry Consensus

The Versatile Performer: Dual-Cure Emulsion

The Leap Forward: Dual-Cure emerged as a more versatile option by combining the benefits of Diazo and photopolymer technologies.

Key Characteristics



- **Composition:** A two-part system with a sensitizer mixed into a photopolymer base.
- **Cost:** Moderate. More expensive than Diazo, but less than SBQ.
- **Shelf Life:** Longer than Diazo.

Performance Gains

- ⚡ Fast exposure
- 🛡️ High durability
- 📏 Sharp edge definition
- ☀️ Wider exposure latitude
- 💧 Easier washing and development

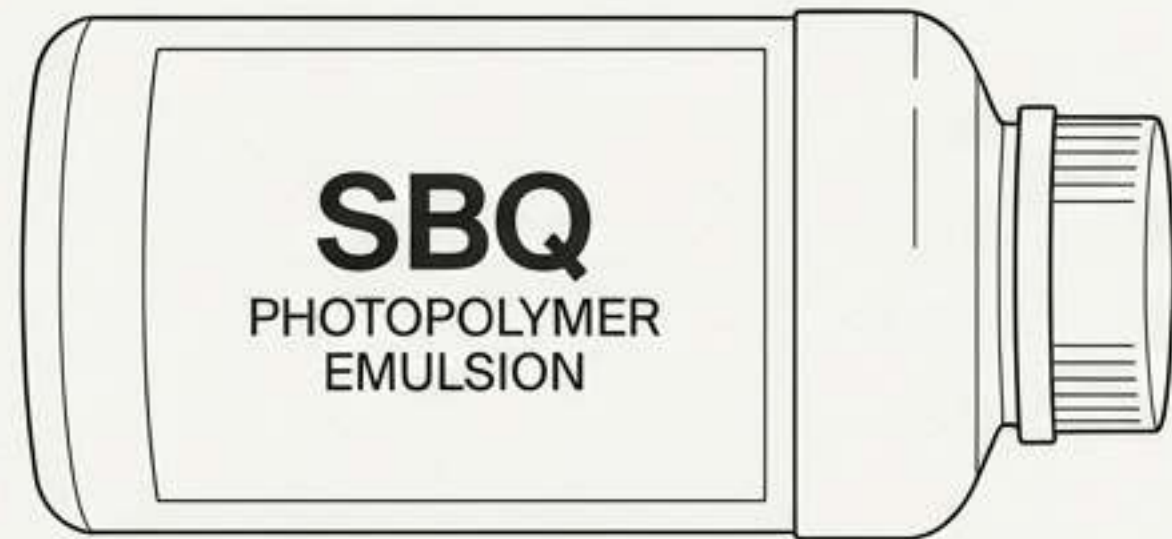
From the Shop Floor

"In my own shop, switching to dual cure emulsions reduced exposure time by 40% and increased the clarity of fine details in complex designs."

The Apex of Efficiency: SBQ Photopolymer

The Modern Standard: The latest advancement, SBQ (Pure Photopolymer) reflects the industry's push towards maximum speed and precision.

Key Characteristics



- **Composition:** Pure photopolymer, ready to use.
- **Cost:** High. The premium option.
- **Shelf Life:** Excellent. Up to one year.

Unmatched Advantages



Fastest exposure times



No mixing required



Excellent mesh bridging



Reduced stencil surface area (Rz)
for sharper prints

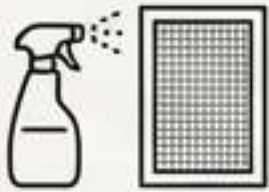
“We saw a 30% increase in production efficiency after switching to SBQ emulsions...
The transition has been a game-changer for the workflow.”

The Tale of the Tape: Emulsion Head-to-Head

	Diazo	Dual-Cure	SBQ Photopolymer
 Cost	Low	Moderate	High
 Shelf Life	30-45 days	Longer than Diazo	Up to 1 year
 Exposure Time	Moderate	Fast	Fastest
 Durability	Good	Very Good	Excellent
 Ease of Use	Moderate (Mixing required)	Easier than Diazo (Mixing required)	Easiest (No mixing)
 Primary Use Cases	General, Cost-Sensitive	Versatile, High Precision	High-Speed, High-Precision

Mastering the Coat: Best Practices for Application

1. Preparation is Paramount

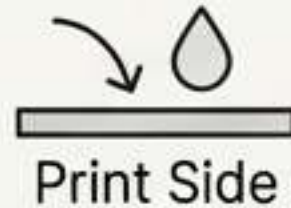


Thoroughly degrease and dry screens.

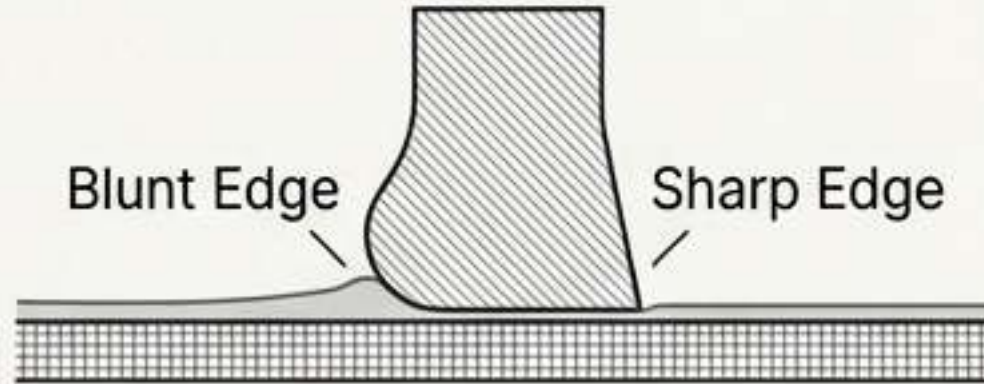


Ensure screen tension is optimal (aim for at least 20 N/cm).

2. The Coating Process

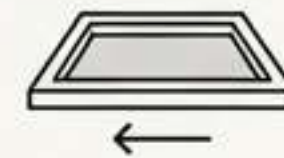


Apply emulsion to the print side first.



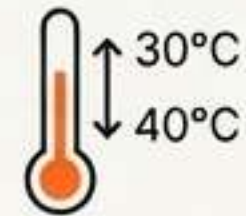
Scoop Coater Edge: Use the **blunt edge** for maximum emulsion over mesh (EOM) or the **sharp edge** for a thin layer.

3. Critical Drying & Storage



Dry screens horizontally, contact-side down, in a dust-free environment.

Crucial Tip: Avoid using a fan directly on the screen to prevent pinholes.



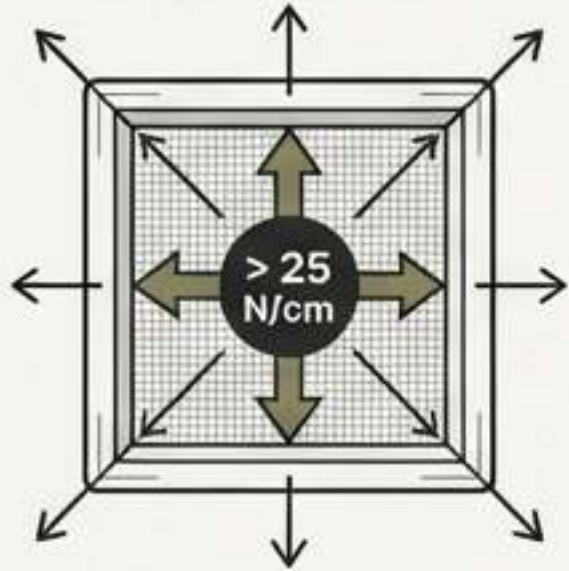
Optimal drying temperature: 30-40°C (86-104°F).



Store coated screens in a light-protected room at 30-50% relative humidity.

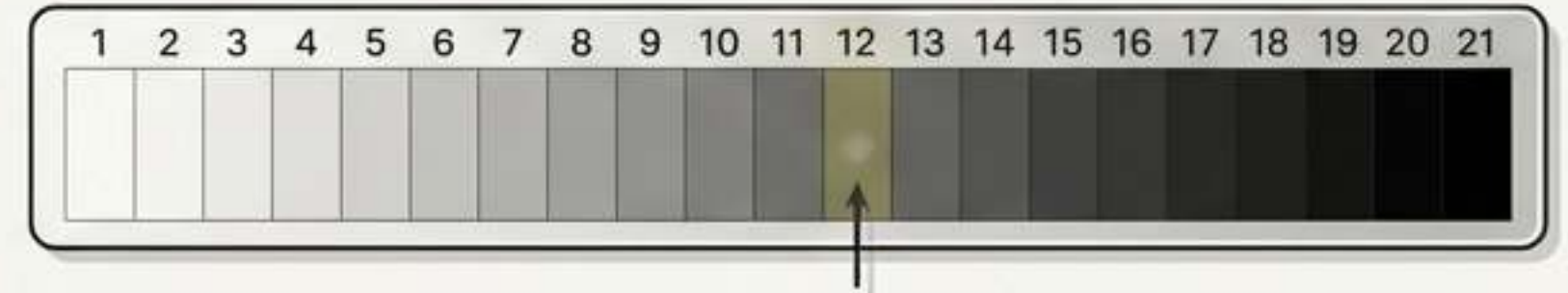
The Pro's Toolkit: Advanced Techniques for Optimal Results

Screen Tension



Higher tension improves print quality and extends screen life.
Pro Target: Aim for tensions above 25 N/cm for critical jobs.

Nail Your Exposure



Don't guess. Conduct a **21 Step Wedge Test** to determine the precise optimal exposure time for your specific setup and emulsion. This ensures maximum detail retention.

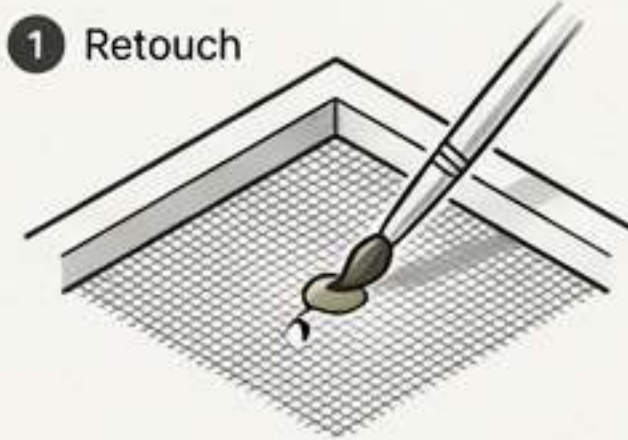
Control Yours Your Environment



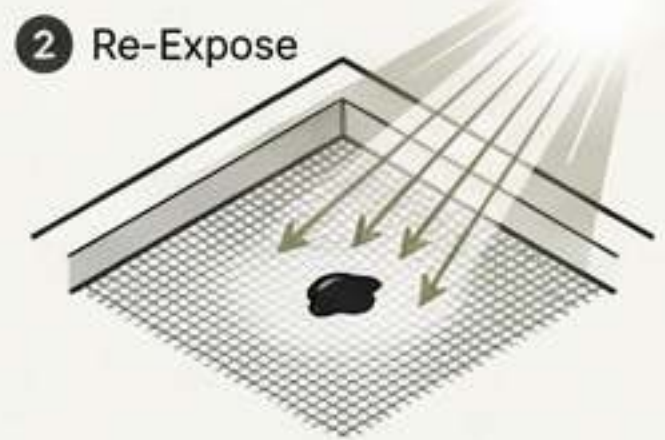
Maintain consistent humidity in drying and storage areas. Fluctuations can ruin emulsion consistency and performance.

Perfecting the Stencil

1 Retouch



2 Re-Expose

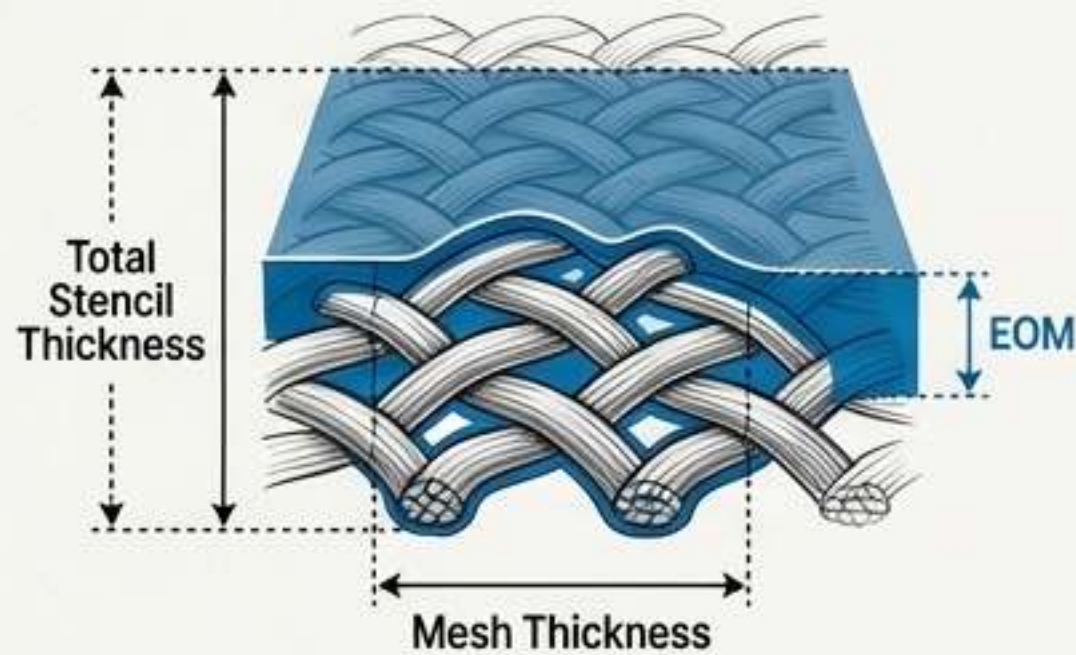


When retouching pinholes, you must **re-expose the screen to UV light**. This fully hardens the retouched areas, ensuring durability during the print run.

Beyond the Coat: Understanding Stencil Thickness & Alternatives

Defining EOM (Emulsion Over Mesh)

Neue Haas Grotesk Display Pro 65 Medium

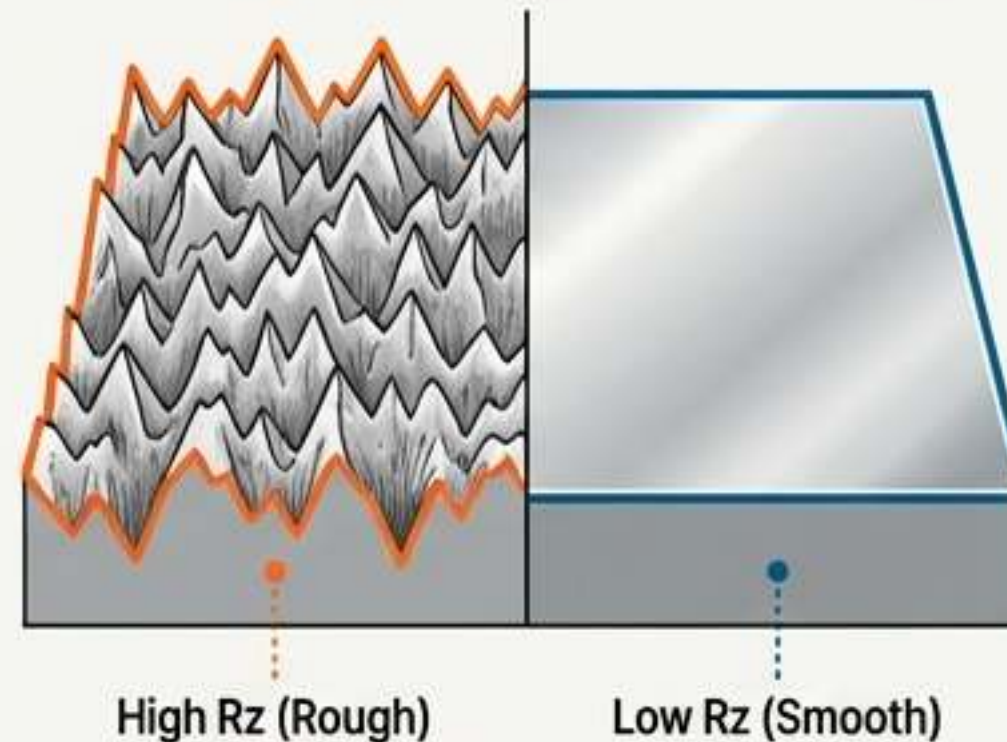


****Formula*:** $EOM = \text{Total Stencil Thickness} - \text{Mesh Thickness}$

****Why it Matters*:** Proper EOM ensures good ink transfer and print definition. The blunt edge of a scoop coater helps achieve optimum EOM.

The Importance of Rz (Stencil Surface)

Neue Haas Grotesk Display Pro 65 Medium



A lower Rz value means a smoother stencil surface, leading to sharper prints. SBQ emulsions naturally provide an excellent Rz.

The Ultimate in Precision: Capillary Film

Neue Haas Grotesk Display Pro 65 Medium



An alternative to liquid emulsion, offering superior mesh bridging, no pinholes, and an excellent Rz value.

****Applications****

- Standard Printing: 10-50 microns
- High-Density (HD) & Special Effects (SFX): 100-400 microns

Choosing Your Emulsion: A Framework for Your Workflow

The right emulsion is not about “best” in absolute terms, but the best fit for the job’s demands of cost, speed, and quality.



For Cost-Sensitive Projects

Neue Haas Grotesk Display Pro 65 Medium

Choose Diazo. The most economical choice, suitable for general use where speed is not the primary driver.

Inter Regular



For Versatility & High Detail

Neue Haas Grotesk Display Pro 65 Medium

Choose Dual-Cure. The all-around performer, offering a powerful balance of durability, detail, and efficiency.

Inter Regular



For Maximum Throughput & Precision

Neue Haas Grotesk Display Pro 65 Medium

Choose SBQ Photopolymer. The ultimate investment for high-volume shops demanding the fastest turnaround and sharpest possible results.

Inter Regular