

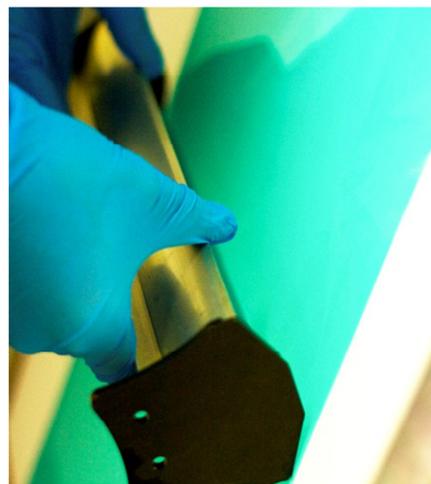


HOW TO COAT EMULSIONS BY HAND | SCREEN PRINTING GUIDE

Are you a beginner or a current screen maker who is looking for guidance on stencil making for screen printing applications? Then this 'How To Screen Print' guide on 'How To Coat Emulsions By Hand' is what you're looking for.

Consistent and good quality coating of the mesh is the key to the quality of the finished print. In this short guide you will learn how to successfully coat with a photostencil emulsion by hand.

Prior to coating any mesh, it is important that you degrease your mesh.



Important

It can never be emphasised enough just how important thorough mesh preparation is. It should be looked upon as one of the basic ground rules when producing stencils.

Failure to pretreat mesh can lead to costly breakdown and screen re-coating in production, which can easily be avoided by taking these few extra and inexpensive minutes at the very beginning.

Coating Troughs

It is essential to use a good quality coating trough if you want to achieve a consistent result. The edge of the trough must be straight with no 'nicks' or other damage. The profile of the edge will influence the amount of emulsion deposited with a sharp edged trough depositing less than a rounded edged trough. In general it is better to select a rounded edged trough as this is



CPS - Chemical Products and Services



slightly more resistant to edge damage. The trough should be tough enough not to flex during use and be able to stand upright when full of emulsion. A lid to the trough can help reduce airborne contamination and slow down drying in the trough.

Coating Basics

The objective of emulsion coating is to deposit an even, blemish free coating in a reproducible way. This can only be achieved if the following parameters are controlled: coating angle/pressure/speed and more surprisingly emulsion level in the trough.

Angle

The coating angle will affect the volume of liquid deposited. Too acute an angle and the trough shoulders will bow the mesh, too great an angle and the trough will scrape rather than coat.

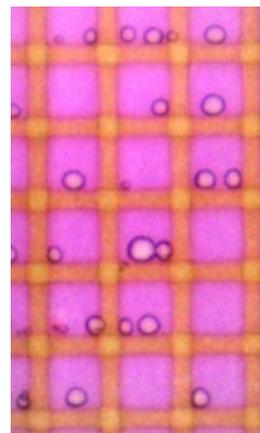
Pressure

The coating pressure will affect the volume of liquid deposited. Too high a pressure could potentially damage the mesh whereas too little pressure will lead to uneven coating as the trough does not 'meter' the emulsion.

Speed

Too fast a coating speed will lead to air bubbles due to incomplete encapsulation of the mesh fibres - especially on coarse mesh counts <math><77/\text{cm}</math> (<math><200/\text{inch}</math>). Whereas too slow a speed could lead to high coating thickness due to excessive push through of the emulsion.

The picture opposite shows how the air bubbles have been trapped on the 'lee' of each fibre during coating. This will create a weak area that is likely to pinhole on long runs



Top Tips

1. Whatever coating regime you choose always finish off the initial wet on wet coatings from the squeegee side. This will ensure that the wet coating is pushed through to the print side where you want it leaving just a thin layer on the squeegee side to provide the durability.



CPS - Chemical Products and Services



2. Low mesh tension can cause an uneven coating of the emulsion. When using a mesh that has low tension you will need to increase the coating pressure or replace the mesh if you want to avoid an uneven or patchy looking stencil.
3. Coating troughs the same width as the screen can cause an uneven coating of the emulsion, this is typically represented by a thin coating at the edges and a thicker coating in the middle.
4. Uneven pressure during coating can cause a patchy stencil and an uneven coating profile.
5. Always coat emulsions on a mesh that has been pre-degreased and is thoroughly dry.
6. Dry screens horizontally as drying them vertically can cause the stencil to look patchy.

How To Coat Emulsion By Hand

When coating manually it is very important that the screen is held firmly. A simple coating stand can help significantly. The screen should be held vertically, angled slightly away from the operator.

Depending on the size and shape of the coating trough it can be held either at the ends or by the body. Ensure that the trough is level and even pressure is applied across its length. Try to keep a constant coating angle for the coating trough lip. It is important that the trough does not ride over the edge of the frame or onto a high build adhesive overlay otherwise this will lead to thick edges.

It is important not to have the screen too high as this could affect the trough lip angle in the upper part of the screen. Typically the top of the screen should be no higher than your chest.

Ensure that there is no loose clothing (or hair) which could come into contact with the wet emulsion or that the screen is positioned too low for comfort.



CPS - Chemical Products and Services



Step By Step Guide

1. Use the more rounded edge of the coating trough for the base coats.
2. Use a dry, well degreased screen held firmly. Level the trough to prevent thick edges.
3. Apply firm, even pressure and we use a slow coating speed to minimise air bubbles.



4. Apply more coats from the print side as required.
5. Look for a glossy surface on the squeegee side. This shows the mesh has been filled with the emulsion.
6. Turn the screen around.



7. Apply one or more coats from the squeegee side to build up the stencil profile to improve print quality.
8. Clean off any thick edges with a card.
9. Dry the screen squeegee side up.



10. Keep the coating trough edge clean.
11. Cover the coating trough with a fibre free cloth if further coats are required.
12. Use the narrow edge of the trough to apply additional face coats to the print side once the emulsion is dry.
13. Once the screen has been dried it can be exposed as normal.



If you have any excellent screen printing hints and tips, please share them in the '[Screen Printers Of The World Unite Community](#)' on Google+ or contact us via technical@cps.eu and maybe we can feature them in a new guide.

For more screen printing guides visit our '[How To Guide](#)' page.

For further information contact us via technical@cps.eu,
CPS, Grove Road, Wantage, Oxon. OX12 7BZ. United Kingdom
Tel: +44 (0) 01235 773240 Fax: +44 (0) 01235 771196
www.cps.eu

The information and recommendations contained in the Company's literature or elsewhere are based on knowledge at the time of printing and are believed to be accurate. Whilst such details are printed in good faith they are intended to be a guide only and shall not bind the Company. Due to constant development, customers are urged to obtain up-to-date technical information from representatives of the Company and not to rely exclusively on printed material. Customers are reminded of the importance of obtaining and complying with the instructions for the handling and use of chemicals and materials supplied as the Company cannot accept responsibility for any loss or injury caused through non-compliance. CPS®, CPS Ultra Coat®, Ultra Cap® and Ultra Coat® are registered trademarks of MacDermid Autotype Ltd. ©2016 CPS Chemical Product & Services (a trading division of MacDermid Autotype Ltd)