

HOW TO REALLY USE AN EXPOSURE CALCULATOR

By Mick Orr
Applications Training Specialist

A lot of people are afraid of using an exposure calculator. Some feel that it is a mysterious tool that is too hard to use. Others are using it wrong by always trying to achieve the impossible.

Let's go through it the easy way. The first thing you have to ask yourself is "What do I want to print?" If the answer is lines and spaces no finer than an eighth of an inch, then exposure is not really a problem. Rule of thumb here would be to expose it between morning break and lunch. Follow this formula: $(C \times 2) + (C + S + D) = MB+L$. In layman's terms, exposure time (in this case) is equal to two cups of coffee plus a sandwich and dessert at lunch...or four hours.

Double the Ease

Seriously now, most screen makers have some idea of how long to expose their screens. But what do you do if you change exposure equipment, or emulsion, or mesh? Now is the time to pull out that dusty calculator you've got hidden under all those screen printing magazines. Most exposure calculators don't come with very good instructions. Others, with too much. Here is a quick five-step breakdown:

1. Make an education guess at what you think the exposure probably is.
2. Double it (if you think it might be a half-hour, double it! If you think it might be 39 seconds double it.) No matter what, double your guess.
3. After developing the exposed screen, dry it completely and examine area A. (there are three quality check areas on the Chromaline calculator. Area A is known as the "Line Resolution Target" area.)
4. Pick the zone that best represents what you are trying to print.
5. Whatever target looks the best, multiply it by the number in that zone.

That's it. You now know our proper exposure for that mesh/emulsion combination.

Alternative to Impossible

Remember how I mentioned that many screen makers use the calculator wrong? Well, the wrong way is trying to achieve two mil lines and spaces every time, regardless of mesh, emulsion, thickness of emulsion, or light source. Fine line resolution isn't everything. Stencil durability and thickness can be just as important. You've been told time and time again to get that detail. As you know, the shorter the exposure, the better detail so you shoot for the shortest exposure that is indicated by the calculator. But, shorter exposure means thinner and weaker stencils. The stencil may look good but it may also break down before you are done printing.

So the real easy way is this: First, determine what is to be printed. Second, match it to the proper mesh count and stencil system as well as the detail size to the targets in area "A" on the Chromaline Exposure Calculator. Finally, run the exposure test to determine the proper exposure for you.

I'm not saying that you should run an exposure test for every job, but run exposure tests to determine the limitations of your equipment and supplies. For example: If you are trying to expose two mil lines and spaces on an 83 mesh, good luck. You are trying to do the impossible. The mesh openings are larger than the two mil lines you are trying to print. Obviously, the mesh is not suited for this particular job.

Using the Chromaline Exposure Calculator is a sure way to get the best exposure speeds. Remember; make a guess, double it, and check the results.



Looking for insight on the wonderful world of screen making? Consult the writings of Chromaline's Technical Guru, Mick Orr, Applications Training Specialist.

Mick has been in the screen printing industry since 1970 with printing experience in a wide range of applications from membrane switches, to textiles, specialty graphics to faceplates and more. His hands-on seminars have been appreciated by screen makers around the world.



Chromaline Screen Print Products

4832 Grand Ave. • Duluth, Minnesota 55807 • Tel: 218.628.2217 • Fax: 218.628.3245
Web Site: www.chromaline.com • E-mail: sales@chromaline.com