

IF THE HEAT DON'T GETCHA, THE HUMIDITY WILL!

By Mick Orr
Applications Training Specialist

Well, that time of year has its grip on us again. Hot and steamy weather is great for vacations but bad news for screen making and printing.

Probably the best place to make screens is in a climate that is typically cold and dry... like Duluth. I'm kidding about the weather we have in Duluth. We do have a beautiful summer, it's just a little short. Hopefully, it will land on a weekend so that I don't miss it this time.

Humidity is truly a major headache for many screen printing companies. I have seen companies that have shut down for the day because the screens were falling off the mesh or sticking to the glass of the exposure unit so tightly that it would ruin the stencil and the positive.

The stencil is not the problem, it's the humidity. Even when humidity isn't very high, it may still give you problems. Have you ever noticed that you have fewer problems in the winter than in the summer? I have. Monitor the humidity in your shop for a year. You will see that fewer problems happen when the humidity is low.

A drying cabinet will help combat a humidity problem, but only partially. When the screen is dried in the cabinet it will only be dry in the cabinet. The moment it is taken out of the cabinet it will begin to draw moisture from the environment. The wetter the air, the wetter the screen becomes. Keep the humidity low and the same throughout the shop and you will have fewer problems with your stencils. We recommend 50 to 70% relative humidity.

Some of the problems associated with high humidity are: weak stencils, pinholing, sticking photopositives, lengthened drying, and poor imaging.

Because they are designed to be processed with water, emulsions and films are sensitive to any moisture. This moisture can and will be sucked out of the air by the coated screen just as if it were a sponge soaking up spilled milk. Not only will the stencil absorb moisture it will swell. Swelling will lead to delamination and poor image quality.

Moisture not only can be absorbed by the polymers of the emulsion, it can also affect the sensitizer. If the screen is exposed to ultraviolet light while retaining moisture, the sensitizer will cross-link with the polymers and the water present in the emulsion. The problem comes when the sensitizer cross-links with the water.

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Remember, the more cross-linking between the polymers, the more durable the stencil will be against abrasion and longevity. Image quality will also be improved.

So how can you solve many of your printing problems without moving to Duluth? Control your shop conditions from screen making to screen printing. Keep everything as consistent as possible. Both the screen making room and the screen printing area should be climate controlled.



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.



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To avoid the capital expense of an air conditioner, an inexpensive preventative against humidity is Chroma/Set[®] emulsion hardener. It will not make your stencil bullet proof, but it will make it more water and humidity resistant. It won't solve your humidity problems but it will improve your stencils.

Chroma/Set is designed to be used with straight diazo-based emulsion systems like our Pro/Cap[®] and Direct/Indirect systems. If you use it with Magna/Cure[®] or Chroma/Tech[®] PL, Chroma/Set can make the stencil brittle, so use it sparingly.