TECHNICAL ARTICLE

LIFE DISCOVERED ON MARS

By Mick Orr
Applications Training Specialist

NASA has just released evidence that life has been discovered on the planet Mars. The red planet thought to be a vast wasteland actually has inhabitants. While they didn't report on seeing any little green men, they didn't say that they didn't exist.

I always felt that Martians existed. One of the most compelling pieces of evidence is the call I got from a screen maker named Martin who was having trouble figuring out the proper exposure on his screens coated with Magna/Cure® film. I asked him what type of light source he was using. He stated that he uses a point light source with a distance of approximately 150 million miles, give or take a few million! "Sure," I says, "how long did you expose your screen on earth?" "Two minutes," he says. "Well according to my exposure formula which looks like this:

New Time = Old Exposure Time X (New Distance2/Old Distance2)

You should have exposed your screen for about 4.5 minutes. What time did you expose your screen for on Mars?" "The same as on Earth," he says. There lies the problem. Any time you change the distance of the light source the exposure time changes.

Usually, it's pretty easy to tell if there is an exposure problem if you know what to look for. If the stencil appears slimy while washing out the stencil. It's underexposed. If the fine lines are all closed in it usually indicates overexposure. Unfortunately, you first must expose and washout the stencil to see what the exposure looks like.

I have a great deal of difficulty in publishing proper exposure times in our literature because there are so many factors that relate to exposure. What type of exposure unit is being used? What distance is the light from the screen? How powerful is the exposure unit? What type of bulb and how old is it that is being used? Is white mesh or dyed mesh being used? How thick is the stencil? What kind of emulsion is it? Is it a diazo, dual cure, or pure photopolymer? How dry is the shop? More humidity means longer exposures. These are a few of the factors that directly relate to a properly exposed screen.

There are two big factors that are the most important in determining the correct exposure. Those factors are: What type of resolution are you trying to print and how long is the print run going to be? Why? Because. Trust me. Better yet, trust the Chromaline Exposure calculator. It will let you know how far you can go on determining the proper exposure for your application.

As you know, the longer you expose the screen the more durable it becomes. The shorter you expose the screen, the more resolution you can achieve. If you're printing two mil lines you better have a very exact exposure time. If you are printing ten thousand banners that have two inch letters, I would worry more about getting a durable stencil than trying to attain two mil lines. My motto is: Always expose your stencil as long as you can and still hold the detail you need. And always use our exposure calculator any time you change anything in your process to determine your proper exposure whether it's on Mars or here on Earth.

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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