

The Penetrant Professor

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What's Required and What Are You Paying For?

One of the most misunderstood phrases is “We all know.....”, because in most cases, we do not all know. So, we all know that if we are working to **ASTM E-1417**, we need to have certain periodic analyses made of our working penetrant materials to insure that they are in good working order. In fact, **ASTM E-1417** has a handy dandy table that tells exactly what analyses need to be made and at what intervals. What could be simpler!

Well, we have had two instances where it seems that someone did not know that this chart was there or they made assumptions that were completely wrong about what should be done. In the first instance, we were contacted by a penetrant user who wished to switch from the lab that he was using to our **Pen-Chek®** service. We outlined the cost of doing the analyses, and he was surprised that we did not analyze for certain chemical constituents, such as chlorine and sulfur. We pointed out that those analyses were not required under **ASTM E-1417** for in-use materials, and in fact were only

required when one purchased new penetrants as a batch control requirement by some OEM's.

Somehow someone got the wrong idea and then periodically tested the concentration of these elements on a regular basis. Of course, they paid for these analyses, which were not required. Whoever was involved in this had apparently never read **ASTM E-1417**.

*Mothers' Day May 11, 2014
Memorial Day May 26, 2014*

The second instance was different. We were advised that the penetrant user was having tests made to determine the penetrant concentration in his lipophilic emulsifier. We had never encountered this before and we wondered what kind of analytical method was being used. The same person was also having the viscosity of the penetrant measured on a regular basis, and as well as the water content of the penetrant. Of course, the knowledgeable penetrant user understands that there is no viscosity requirement for in-use materials and that water content is only run on Method A ,water

washable penetrants, not Methods B & D, PE penetrants.

ASTM E-1417 does require the water content of Method B emulsifier be measured, and that the emulsifier must adequately remove the penetrant. The removal test is a performance test that does not need an analysis of the amount of penetrant in the emulsifier. What counts is that the process works, and that is the way that the test is made. We do not know how the tests of penetrant concentration in the emulsifier were being made, and even further, what use they were being put to. A simple review of the specification would set everything right, and the cost of analysis would decrease by eliminating tests that were not required, and may not be meaningful.



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New Faces

Met-L-Chek is growing and this growth has required us to add a couple of new “younger” people to our team.

Edy Vergara is learning the ins and outs of penetrant manufacturing, hazardous goods shipping requirements, and proper packaging. There is a lot more to learn than one first thinks, and details are important. Our goal of consistency in batches requires considerable attention.

In our office we have a new smiling face, **Lisa Zugarazo** or just **Z** for the tongue tied. Lisa is an eager self starter with an infectious smile.

We and our customers are fortunate to have such enthusiastic new comers.



A Refreshing Conversation

We are always happy to discuss things with our customers, because, if for no other reason it gives us subjects to relate in this newsletter. So recently we had a very interesting discussion with a person who was manufacturing a structure that would hold probes and instruments that would be launched into space in an interplanetary investigation. The structure was made of titanium. The first question was typical of what a person asks who is not intimately familiar with penetrant inspection. He wanted to know how long a crack the penetrant would find. Of course, it soon developed that the question was not “how long”, but “how small”. Further discussion revealed that they wanted NO cracks or defects of any kind, and they had sent the structure to a testing lab that used Met-L-Chek penetrants for evaluation. The conversation then proceeded to a discussion of the different sensitivities of penetrant available, how these were determined in accordance with AMS 2644, and the extremely important role of the inspector in determining the existence of faults. The person then related that the inspection lab had discussed the issues of Probability of Detection, supporting this with data, and then had advised

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that they had made two separate determinations using two separate experienced inspectors. We were impressed with the knowledge and care with which the inspection lab approached this task and were able to convey the relevant facts to the person who inquired. This was a case where we had nothing to suggest and where the lab had completely understood the importance of the inspection and responded in a very professional manner. We love to hear things like this.

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To receive it, call or Email Lisa Zugarazo.