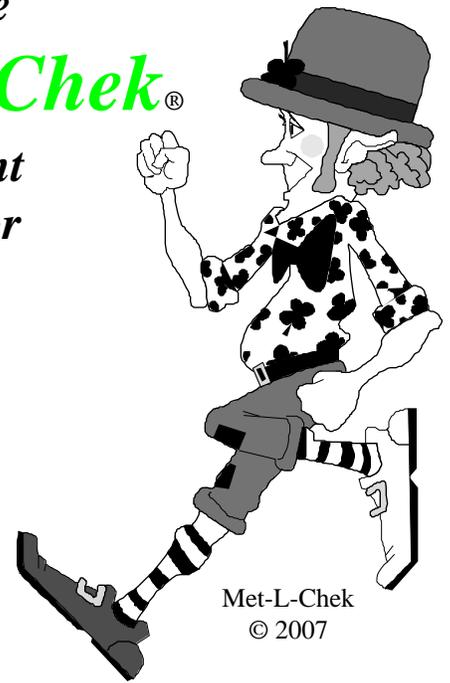




The **Met-L-Chek®**

Penetrant Professor



Met-L-Chek
© 2007

BEHIND THE SCENES

There is a body of research going on at a couple of places that has to do with penetrant inspection. At Sandia laboratories, the following question was investigated:

“If a field inspector accidentally used aged penetrant materials, would that reduce the likelihood of detecting fatigue cracks?”

To investigate this question, a careful laboratory test was designed, using specimens containing low cycle fatigue cracks in inconel-718 and titanium 6-4. these specimens were tested using Method A, level 4 water washable penetrants, and form a dry powder developer. Penetrants from three manufacturers were used, with comparisons between fresh materials and materials that had been stored in unopened containers for 6 to 10 years. Met-L-Chek penetrants were one of the three selected for the tests. Five test runs were made on each of the fresh penetrants and each of the aged penetrants on the inconel samples,

and an equal number of tests was made on the titanium samples.

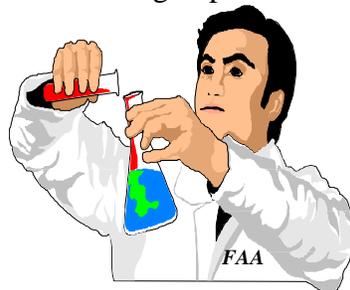
The brightness of the flaws located in the tests on the inconel samples was then read with a spotmeter, and the results of the five runs were averaged. It was found that there was no significant difference between the new and the aged penetrants from manufacturers A and B, but that the penetrants from manufacturer C showed higher brightness when the aged penetrant was used in comparison to when the new penetrant was used.

For the tests made on the titanium samples, again there was no significant difference between the fresh and the aged penetrants from

manufacturers A and B, but once again, the materials from manufacturer C showed higher brightness results from the aged product.

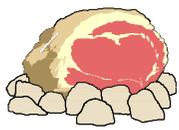
The report concludes that manufacturer C generally had lower crack brightness levels for aged and new penetrant when compared against other manufacturers tested.

As a final note, we will just add that **Met-L-Chek®** was **not** manufacturer C. “Nuff said”.



Iowa State University also has an ongoing program investigating various aspects of the penetrant inspection process. Members of their research team have already delivered talks about their results at national

ASNT meetings. Now the team working on these questions is to convene immediately prior to the Spring ASNT meeting in Orlando. The stated purpose of the meeting is to review the results of their efforts, and to discuss ways to implement those results that promise an improvement to the inspection process. **Met-L-Chek®** will be in attendance and will report on the results of the meeting in a future issue of this newsletter.



SIDELIGHTS

There are facets of the NDT business that the consumers of NDT materials do not usually see. We deal with these on a daily basis, and recently we found that the same things also happen in France - -and probably elsewhere in the world as well. Our french colleague was detailing some of the annoying things that he found happened on a recurring basis. Among these items he lists the following:



PENETRANT PROFESSOR is an occasional publication of Met-L-Chek company. To receive it--call, FAX or email Bev Clarke



2007

- A request for a written quotation for a single item of minimal cost, such as an aerosol spray can.

- A complaint that the certifications were not received, when, in fact, copies were sent to the buyer in the purchasing department, copies were attached to the shipping documents, and copies were fastened to the containers. The complaint comes from the quality department, who failed to receive any of the attached certifications, which the recipients simply disposed of.

- Requests for specification documents that are not issued by the manufacturer, but by organizations such as ASTM and SAE AMS.

We experience these same things, but we can add to them

- “Where can I get a copy of the MSDS?” is another question. The MSDS is sent along with the certifications, but whoever disposes of the certifications probably also does so with the MSDS. The MSDS are on our web site, but we often send them via email or FAX as well.

- “We did not receive the item that you sent via FAX.” We will never understand what happens to items that are sent via FAX and not received. In some cases, we end up sending the FAX several times, and each time we are told that it has not arrived. Finally when we ask the person to stand at,

the FAX machine while we send it, miraculously the item arrives.

- A complaint from a user of our **Pen-Chek®** and **Mag-Chek®** service that their magnetic particle bath failed the sedimentation test, when the sample received had no particles visible in it.

- A complaint from a penetrant user that the sample sent to us failed, when the sample was visibly highly contaminated or separated due to water contamination.

- Samples received for analysis that are simply labeled “penetrant”, with no further identification revealing what kind of penetrant, who manufactured it, what batch number it was, or when the sample was taken.

While some, or many, of these things can get on one’s nerves, we deal with them as simply part of the business that we are in. With a business-like attitude, we dutifully reply in whatever fashion seems appropriate, sending copies of certifications, explaining what is on our web site, pointing out that there was no identification on samples sent, or helping to resolve whatever else the problem or question was.

The Penetrant Professor

