

The JUNE Penetrant Professor from Met-L-Chek



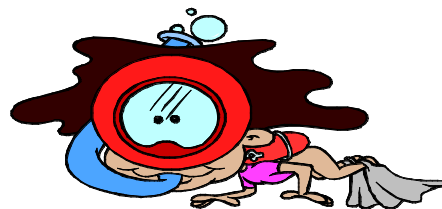
WATER QUALITY

Many of the questions that we get seem to be really simple, but if they truly were simple, we would probably not get them. Recently we were called by a customer who wanted to use our 300LF alkaline cleaner in one of his factories which was in a foreign country. 300LF is diluted with water, and the customer wanted to know whether or not he needed to analyze the water to be sure that the product would work satisfactorily. This was a wise precaution on the part of the customer, but it turns out that his concern was not necessary. 300LF is used in many parts of the world, with whatever water quality is present, and it performs properly. In addition to the alkaline components of 300LF, it contains sequestering agents and other components which compensate for variations in water quality. Be assured that if you use this product, water quality is not a major issue.



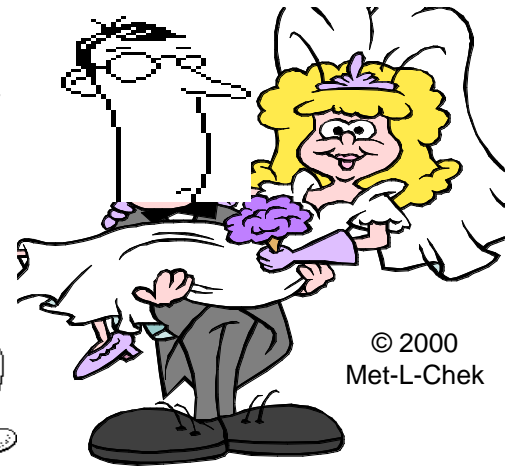
TESTS

We all have to make tests on penetrant products. These are to verify that what is in use is OK. However, there are tests and then there are — well, tests. It pays to know a bit about these, because, as the old saying goes, knowledge is power, especially if you are undergoing an audit. Of course, if you are a penetrant user, one of the best ways to finesse an audit is to have your periodic tests made by an approved laboratory, such as Met-L-Chek. That way, you do not have to know the details and the intricacies of the various tests, and justify them to the auditor.



WATER

Let's look at the water test. The amount of water which is allowed in undiluted hydrophilic emulsifier is 5%, and the amount of water which is allowed in water washable penetrant is also 5%. The original test specified for verifying this was ASTM D 95, which involves the



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distillation of a sample of the product along with xylene or toluene. However, this test cannot be used if the product being tested has ingredients which form an azeotrope with water. Azeotropes are not separable by ordinary distillation, such as used in ASTM D 95, and what happens is that the water and the other materials involved in the azeotrope show up together as "water" in the test. This results in a false reading which is always too high. The proper test to use is a modified Karl Fischer method, which is also approved under AMS 2644 and ASTM E 1417. This method gives accurate results, and it is easier to use, less expensive, requires simpler equipment, and is safer and faster than ASTM D 95. If you want a copy of the procedure, let us know, and we will be happy to send it.

BRIGHT-NESS



Frankly, we hate the brightness test. We have argued for years about how good it is, what it means, and whether it is necessary. But in spite of many efforts to kill the test, it persists to this day. However, it has problems. The main problem is



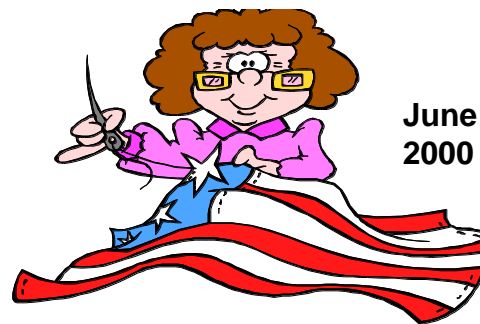
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what equipment to use. The original equipment which was specified in MIL-I-25135 was the Coleman or Turner photo-fluorometer, which required modified sample holders. But then, some 20 years or so ago, both the manufacturers of these instruments stopped making them. So if you did not already own one, you were simply out of luck. Seeing an opportunity to provide such an instrument, NDT Italiana SAS developed an instrument to replace the old Colemans and Turners. This instrument, the model S 291, was tested and approved for use under ASTM E 1417. So, is everything OK? Far from it. Under extensive testing at Met-L-Chek, it was found that brightness tests made on the same samples by the three instruments were not statistically equivalent. This means that if a test is made on any one of the instruments and the sample passes, there is no guarantee that the same sample will pass if it is tested on one of the other machines. This situation seems silly to us, but strangely enough, it does not seem to bother anyone else. But it would be good to keep the situation in mind. At Met-L-Chek, we use a Coleman instrument which has been calibrated by the Air Force Materials Laboratory personnel.



One never knows how a person will evaluate a penetrant. It is just like not knowing how a person will react to a serving of broccoli or rutabaga. Some people will like it very much, and others will hate it. In a two week period, we had opposite reactions to one of our water washable penetrants from two potential customers. One told us that the penetrant washed too easily, and that he was afraid that it would not be retained in the cracks. The other told us that it was too difficult to wash, and that it left too much background. Can both of these statements be correct? Actually, there can be conditions which would tend to support each of these statements at the same time. The first person might be inspecting highly polished parts, and the second might be inspecting very rough castings, and these opposing conditions of surface roughness could cause this kind of opposite reaction from the inspectors. However, if one refers back to the AMS 2644 specification, it will be clear that the penetrant in question has been through both the sensitivity and the background fluorescence tests, and that the penetrant passed both. This is proof that the penetrant performance falls within the narrow band allowed by the specification, and that it is not markedly different in performance than other brands. But, like many other things, performance is sometimes in the eye of the beholder.

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call or FAX Beverly Clarke



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SPOTLIGHT - BEVERLY

When you phone Met-L-Chek, you will usually get the cheery voice of Beverly Clarke on the phone. Cheery is really Beverly's forte. She is perpetually upbeat, and her ready laugh and warm personality make her a favorite with our customers. Beverly will take your order, explain about product differences, advise on shipping, or add your name to the distribution list for THE PENETRANT PROFESSOR. Need an MSDS? Ask Beverly and it is yours. Want technical help? Beverly will put the right person on the phone. She has been with Met-L-Chek for over six years, and has a well rounded knowledge of the business. In her off hours, Beverly uses her caring and thoughtfulness in church work, and in feeding the homeless. You will enjoy talking to her and doing business with her.

**The
Penetrant
Professor**

