



The Penetrant Professor from *Met-L-Chek*®



Met-L-Chek in Asia



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We are very pleased to be involved with McGean CeeBee Singapore. Their dynamic sales force has grown the Met-L-Chek customer base in China, Malaysia and Singapore. The most recent addition has been ST Aerospace, Xiamen P.R.C. The sales force is supported by the technical and logistics staff in Singapore, under the management of Mr. Paddy Ong (not pictured), who somehow ended up with an all female staff!



CeeBee personnel: Wilson Wang, Mike Lin and Ee Poh Choon



ST Aerospace personnel: supervisor Shen He Ping, technicians Chen Ji Hong, Huang Chuang Qing, Wang Hao, Yu Huan, Zhang Zhi Xian, and Zhuang Qiao Kun

To service the customer base with monthly in-use penetrant material testing, a Pen-Chek® service center has been established at the CeeBee Singapore facility. Their head chemist, Ee Poh Choon, and Assistant Chemist Annette Lumanog, have been trained to run the tests required by [ASTM E-1417](#) and Met-L-Chek.

Mixing Batches

We do not know to what extent this subject is a problem for anyone in the US, but it seems to have come up in Europe. There is a lot of common sense involved in this subject, and probably most, if not all, of our readers will agree with that. But let us take a look at the subject.

The easiest situation to look at is where one has a tank full of penetrant, and the level falls because it is being used to inspect items. The level then needs to be brought up by adding penetrant. When the replacement penetrant is ordered, it is rarely possible to get the same batch that is in the tank unless a special arrangement has been made

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with Met-L-Chek to put a certain quantity of a specific batch into inventory, tagged for a specific customer. Otherwise, the product ordered will be of a different batch than what is in the tank. Assuming that the penetrant ordered is the same product that is in the tank, the replacement material will have been manufactured, tested, and certified to be the same as the product that is in the tank.

There are two situations where one might add a different product to the tank than what is in it. Both of these situations are to be avoided, but there is evidence that they have happened in the past. The first of these is when the tank contains a penetrant made by manufacturer "A". When the tank needs to be replenished, the purchasing agent does not realize that the same product must be added. This agent orders a penetrant of the same type, method, and sensitivity, but made by manufacturer "B". His or her logic could be that a Type I, Method A, sensitivity level 2 penetrant is listed on the QPL as being equivalent among all qualified manufacturers, and therefore they can be mixed. While this might be an appealing bit of logic to the uninformed, those who have the responsibility for the inspection process know that this cannot be done. Different manufacturers use different formulations that result in equal performance, but they can not be mixed, because it would result

in a formulation that was not approved, and which might not work.

The second situation is where a penetrant of the correct manufacturer, correct type and method, but of a different sensitivity is added to the tank. Now one has a tank filled with a penetrant of unknown sensitivity. It is possible that the resulting penetrant could have a sensitivity somewhere between the two levels, but even if it does, the tank no longer has an approved penetrant in it.

These situations can be avoided by being careful to order the correct product, and then being sure that the product is added to the correct tank. Of course, one of the reasons for performing the periodic **ASTM E-1417** tests on the penetrant in the tanks is to detect problems of this type.

Contamination

Here again, there is a lot of common sense involved. One should simply see that junk- oops, foreign material – does not get into the penetrant. But it does happen. There is the obvious poor practice of people throwing stuff into the tank. We are told that tanks have been seen with plastic water bottles floating in them, and we know of an instance

Meetings of Interest

SAE committee **K** will meet Sept. 22, 2014 during the A4A NDT Forum(formerly ATA) at The Embassy Suites Burlingame CA.

ASNT Fall Conference will be held in North Charleston S. C. October 26 - 30, 2014 at the convention center.



where a janitor cleaned his mops in a tank of emulsifier. Then there are those instances where the source of the contamination is much less obvious.

Water can get into a tank of water washable penetrant as over spray from a poorly directed water wash nozzle or a nozzle hung over the tank lip. Water can also get onto a tank from condensation, a bit each day until there is enough to cause problems.

The penetrant composition can change because parts are immersed in it while they are too hot, causing some of the penetrant ingredients to evaporate. Parts can be immersed that are not properly cleaned and that have contaminants on them that then are left in the penetrant. Parts can be immersed that have acid or alkali residues on them from the cleaning operation that change the chemistry of the penetrant, including quenching the response of the dye to UV-A. Proper design and operation of the inspection system and an awareness of what is going on can minimize the possibility of these things happening. Keeping tanks covered when the inspection line is not in use is also a very good practice.

The Penetrant Professor

