

The March 2012 Penetrant Professor from Met-L-Chek®

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SAE/AMS Committe K
will meet
Monday March 19, 2012
at the
ASNT Spring conference
March 19 -22, 2012
in
Dallas, TX



HAPPY ST. PATRICK'S DAY

Batch Numbers On The Tank

A non problem with a non solution.

Every penetrant line has a sign on the penetrant tank that identifies the material in the tank, together with its batch number. As the penetrant is used and its level drops, it is replaced with fresh penetrant that almost always has a different batch number. It is the usual practice to change the sign to reflect the new batch number. But the question has arisen as to the details of this change in batch number. Recently we heard of a discussion in which one inspector was in favor of not adding the new batch of penetrant until the tank was less than half full, and then adding new material and changing the batch number on the tank. We presume that the logic behind this is that the tank would then have a majority (more than 50%) of the new penetrant in it, so that changing the

sign to the new batch would be defensible. The other inspector had a different point of view, in that he supported changing the batch number to the new penetrant without regard to whether or not it constituted more than 50% of what was in the tank. Let's look at some situations that would test each of these ideas. First, suppose that you have a penetrant line in which you need almost a full tank of penetrant in order to immerse the parts to be inspected. In this case, waiting until the tank is half empty is simply not an option,



and regardless of the amount to be added, the batch number needs to be changed. Regardless of the amount?? This is the rub. Suppose that you add a teaspoon of the new penetrant. Should the batch number be updated? Suppose that the tank needs added penetrant and you have two different batches that are used to bring the level up. What then? And which batch number would you use?

As it turns out, these are non problems and so there are non solutions. In each individual case, one may do what appears to be rational. From an operational point of view, as long as the same penetrant is added that is in the tank, and as long as it has a certificate of conformance accompanying it, it is essentially identical to what is in the tank. That is the beauty of using QPL approved products, because each batch is

tested by the manufacturer to assure that it meets the requirements of **AMS-2644**, which are tight enough that even though one is adding material with a different batch number, the material is essentially the same. What scheme is used for changing the batch number at one location may not be the same as at a different location, but it makes no difference, and discussions about which scheme is preferable might be interesting, but are not likely to result in anything earth shaking.



Wait – there is more! Most lines are run according to **ASTME-1417**, and this specification continues the protection offered by **AMS 2644**. Samples of the material in the tank are taken periodically in accordance with **ASTM E-1417** and are analyzed to confirm that they are in conformance with the Type, Method, and Level of penetrant specified for the line, and that the penetrant is functionally servicable. Again, what is important is that the penetrant be correct, that additions to the tank be the same and have a COC, and that the periodic ASTM checks continue to verify that the penetrant is in serviceable condition. With all of this, any issue concerning when to change the batch number on the tank is very minor.

PENETRANT PROFESSOR is an occasional publication of The Met-L-Chek Company. To receive it, call or Email Beverly Clarke.



2012

Emulsifier Concentration

Like many aspects of penetrant inspection, something simple sometimes has subtleties that may or may not affect the process, but which cause one to wonder about them. One of these subjects is the concentration of the hydrophilic emulsifier. The QPL concentrations for the emulsifiers made by different manufacturers are sometimes different, and the chemical composition of these various emulsifiers is also different. To measure the concentration, one uses a refractometer. But the refractometer does not give a direct measurement of the concentration and a conversion chart must be used to change the reading to concentration. One must be aware that a 20% concentration of one manufacturer's emulsifier may not give the same reading as a 20% concentration of a different brand of emulsifier.

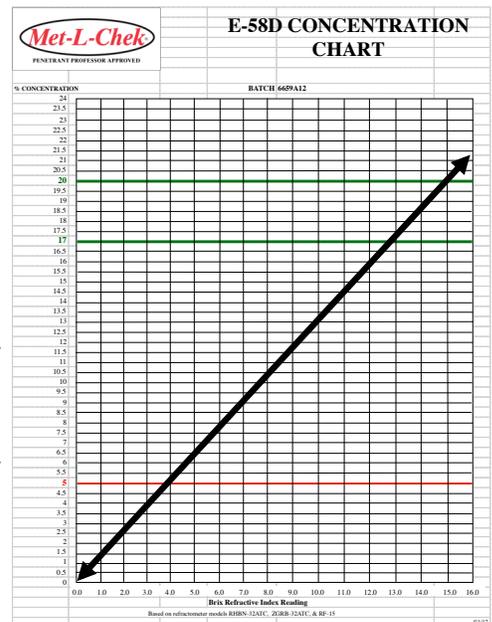
March Madness 2012



This is because the charts are specific to the brand of material being used. So be sure that you have the correct refractometer specified by the manufacturer, and the correct chart for the emulsifier.

Met-L-Chek can provide a chart for each batch of **E-58D**; simply email us a request along with the batch number.

One does not need an expensive gadget to make the measurements, but it must be the right type of refractometer. A hand held unit that reads in Brix units 0-32 is all that is needed. Make up a couple of known solutions and plot out your own concentration chart for the material you are using and your refractometer.



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