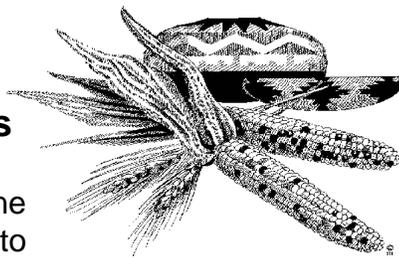


# THANKSGIVING



## **Penetrant Professor**

**from Met-L-Chek**



### **In-Use Material Checks**

We occasionally receive phone calls from people who need to know if they are obligated to perform material checks on their penetrant inspection materials. These checks are required by ASTM E 1417, and by other specifications under which penetrant inspections may be performed. A review of why these checks are necessary, and which materials they apply to, is in order.

The reason for the checks is simple. It is so that the inspector is assured that the materials being used in the inspection process are in the proper condition to perform the inspection. Materials can fail in a number of ways. The simplest to understand, and one of the most common, is that water washable penetrants and lipophilic emulsifiers can become contaminated with water. All penetrant liquids can become contaminated with dust and dirt from shop air, or from residual chemicals on the parts from the precleaning operation, or other shop operations which precede penetrant inspection.

Contaminants can affect the penetrant materials in several ways. Penetrants with excess water in them won't penetrate the flaws as well, or not at all. Fluorescent penetrants which have been contaminated with certain precleaning chemicals will lose their fluorescent brightness. Lipophilic emulsifiers with too much water in them may separate and become ineffective. Penetrant liquids with particulate contamination may show false calls, as the particulate matter may absorb penetrant and then stick to the surface of the part, where they then may seem like a flaw indication.

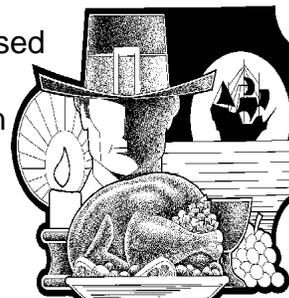
The logical type of operation which requires these checks is one which is subject to the sources of contamination, and are mostly tank operations which have production line flows of parts through the system. Most all operators of systems like those are aware of the need for

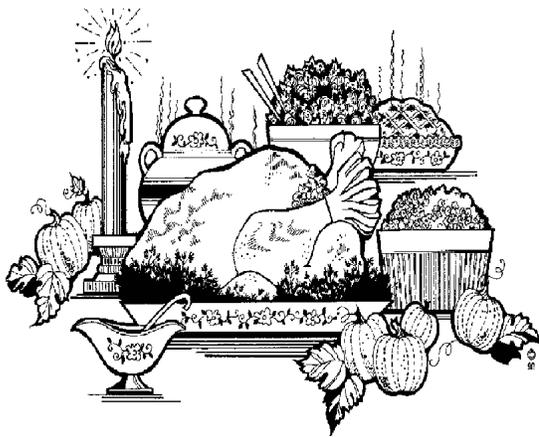
material checks, and routinely perform them. These checks are specified in paragraph 7.8.2 of ASTM E 1417.

But we get calls from people who are performing inspection with aerosol cans, and from people who use materials from a bulk container, but who then discard the used materials. Logic would say that these types of inspection do not need material checks, and ASTM E 1417 verifies this. The actual statement is as follows:

“Materials that are not recovered or reused, or both, such as materials packaged in aerosol containers, are not subject to the requirements of 7.8.2”.

We are pleased to report that common sense has prevailed in this requirement.





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

The tests required for penetrants are listed in ASTM-E-1417, and are as follows:

**ASTM E-1417**



	<u>Paragraph</u>	<u>Frequency</u>
<b>PENETRANTS</b>		
Fluorescent Brightness	7.8.4.1	quarterly
Water Content (Method A)	7.8.2.2	monthly
Removability (Method A)	7.8.4.2	monthly
Sensitivity*	7.8.4.3	weekly
Penetrant Contamination*	7.8.2.1	daily
<b>EMULSIFIERS</b>		
Water Content (Method B)	7.8.2.3	monthly
Removability (Method B & D)*	7.8.4.4	monthly
Concentration (Method D)	7.8.2.7	weekly
<b>DEVELOPERS</b>		
Dry Powder: Condition	7.8.2.4	daily
Aqueous: Contamination	7.8.2.5	daily
Aqueous: Concentration	7.8.2.6	weekly
<b>SYSTEM PERFORMANCE*</b>	7.8.3	daily



\* All materials are to be checked for separation, discoloration, contamination and general performance on a daily basis by the penetrant system operator.

If you need to have these re-certification tests performed, the Pen-Chek service offered by Met-L-Chek is a cost effective way of staying in compliance. Met-L-Chek is an approved USAF penetrant qualification laboratory, and is equipped to perform all of the required tests. In addition to the low cost, results are available within 1 working day of receipt of the sample.



Call, write, or email Met-L-Chek for a free Pen-Chek sample kit to send your products for rapid and economical testing in accordance with ASTM E-1417, with results sent to you via FAX within 1 day! You will be pleased with the quick service and low price.

**The Penetrant Professor**