The Penetrant Professor from Met-L-Chek®

NEW NEWS ABOUT ASTM E-1417

In the September issue of this newsletter, we urged folks to vote on the suggested changes to **ASTM E-1417**, by which it would become an aerospace document and would be aligned with present **NADCAP** checklists. Typically, we took no position on the issue because we are a manufacturer and **ASTM E-1417** is a user document. We simply suggested that members exercise their right to weigh in on the ballot and cast their votes. We have received the results of the ballot on that proposition. These results are very decisive, in that the negative votes prevailed. But probably even more interesting are the comments that emerged from the voting.

First, the rules governing the ballots appear in ASTM regulation paragraph 11.2.1 which states "An affirmative vote of at least two thirds (66.6%) of the combined affirmative and negative votes cast by the voting members is required with not less than 60% of the voting members returning ballots." In the case at hand, there was a 70% return, or 86 votes. Of these 35 were affirmative and 51 were negative. The math shows that there was an affirmative vote of 40%, compared to the 66.6% required to pass the ballot. The proposal is essentially dead and any future action relating to the document will be considered new business.

One interesting fact comes from George Luciw, who is the ASTM Staff member in charge of ASTM Committee E-07. George states as follows:

"Speaking of E-1417, I have been at ASTM for close to 28 years. I have never seen a Subcommittee ballot return like the past E-07.03 (09-02) Subcommittee ballot. 35 affirmative, 51 negative, 15 abstain, and 4 comments. Over 100 pages of emphatic statements, comments, opinions, recommendations, and suggestions."

Other interesting facts are that both the Navy and Boeing, primes using NADCAP, voted against the ballot.

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Some of the comments concerned the **lack of technical justification** for the proposed changes.

Others objected to the proposal of incorporating **NADCAP** requirements into the specification.

Still others suggested developing a completely separate document and leaving E-1417 alone.

But the impressive thing is that the voting membership actually paid attention to this important issue and acted on it.

For many of us, the meetings and issues sometimes seem dull and sleepy, and we sometimes wonder if those members who never show up at the meetings pay any attention at all to the subjects under consideration. The reaction of the members, in this instance, appear to quash any thought that important decisions will be made by a tiny handful of those who attend the meetings. The turnout was impressive, not only because of the number of votes, but because of the more than 100 pages of comments. We find this kind of spirited response encouraging for our industry, and we are happy to have been part of it.

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Red Dye Penetrant Relative Sensitivity

AMS-2644 sets sensitivity levels for fluorescent penetrants 1/2 - 4 with 4 being the most sensitive, but it does not set sensitivity levels for visible penetrants. The **ISO 3452** specification also has sensitivity levels 1/2 - 4 for fluorescent penetrants but also establishes 2 sensitivity levels of visible penetrants.

The purpose of this article is not to discuss the relative merits or short falls between how the different specifications establish the sensitivity levels of fluorescent penetrants. Our interest is in showing visible penetrant users a practical view of relative sensitivity for red dye penetrant applications.

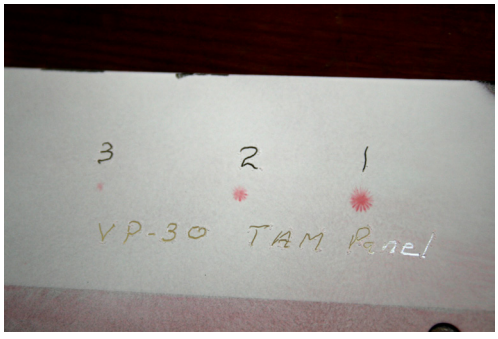
The ISO specification uses chrome cracked panels with plating thicknesses of 30μm and 50μm. For an indication to be counted it must extend 80% of the width of the panel. A sensitivity level 1 visible penetrant must reveal 90-99% of the indications on the 50μm panel and < 75 % of those on the 30μm panel. The level 2 penetrant must show 100% on the 50μm panel and ≥ 75% on the 30μm panel.

Fluorescent penetrant users, especially those working in aerospace, are all too familiar with a test piece called a **TAM** panel. The panel has 5 star burst indications. The star bursts are to be with in a specified width range.The **TAM** panel does not measure sensitivity, but it can be a guide to the response of a penetrant in different flaw sizes.

#1 indication range is 4.57-6.35mm
#2 indication range is 3.18-4.30 mm
#3 indication range is 1.91-2.36 mm
#4 indication range is 1.17-1.57 mm
#5 indication range is 0.38-0.79 mm

It is realistic to show the first 3 indications with **VP-30** and **VP-31A** on a **TAM** Panel, something a level 1 fluorescent penetrant would do. One should be careful about drawing conclusions however, since one is seldom inspecting chrome plated surfaces and background will hinder detection of the finer indications.

The Penetrant Professor



TAM PANEL