# Certification for Condition Monitoring, is there a need?

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**Abstract:** Certification is the latest buzzword floating around the corporate world. Should the company strive to attain ISO 9000 certification? What about ISO 14000? What about all the maintenance initiatives: TPM, CBM, RCM and other TLA (three letter acronyms)?

Putting together a condition monitoring program requires determining what to do, when to do it, and with what technology. Going on-line, or soliciting information from vendors will give several different answers. Conferences like this one are another source of information, but for someone just getting started, there is a lot of confusion.

Of course, you can hire a "condition monitoring consultant", but how do you know the consultant is truly qualified? If you are a large company, and you want to hire a "condition monitoring expert" yourself, what requirements do you look for?

While some condition monitoring technologies have certification programs, how does the training and testing compare from one vendor to another. When there is no certification available, or existing Non Destructive Testing criteria do not appear to apply, what experience do you look for? Of course, the question of how old the knowledge is might well be asked.

Even with technology certification, there is still no certification for "condition monitoring" per-se. We need to ask if there is a way of training maintenance professionals "condition monitoring" that allows rational decisions to be made by management.

This paper will explore the issue, and while it may provide some preliminary answers, it is primarily designed to provoke discussion and comment within the condition monitoring community.

**Keywords:** Analysis; acoustic emission; condition monitoring; infrared thermography; proactive maintenance; tribology; vibration.

**Introduction:** In the last few years, there has been a growing impetus for many businesses to gain ISO 9000 certification. As part of this effort, many of these businesses have decided that their personnel should also gain some level of certification in their profession or craft. Admittedly, this is a vanity move by some organizations, but for many firms, the writing is on the wall that to compete, they have to make improvements in the way they do business, and be able to show that improvement to the world. Increasing global competition makes organizational improvement a necessity, and almost every manager has read articles in professional journals about asset management, equipment availability, working smarter, ad infinitum.

Personnel certification is a very fuzzy area. When you look at the certification programs that are available for condition monitoring technologies, two techniques have multiple certification programs available: vibration and infrared thermography. The only question that tends to get asked by management when the programs are discussed is, how much does it cost. As soon as we move to other technologies such as acoustic emission or tribology, the list of certification programs decreases dramatically.

The content and depth of instruction in the various training and certification programs appears to vary considerably. In most vendor sponsored programs, the course is intimately tied up in the hardware or software the vendor provides. This is not necessarily a bad thing, but it does raise questions about the validity of the training for application with other equipment.

Other questions arise as to the currency of the training and certification. Is there a renewal period? Is the renewal tied specifically to active work in the field? Are the renewal criteria realistic?

What if there is no acceptable certification program available? How does a manager gain confidence in the ability of personnel to make the right decisions based on the information provided by the technology? Perhaps the prime question should be, what is the best technology to use in a given situation?

**Role of Standards Organizations:** In the last year, the potential need for standards for condition monitoring certification have been raised at the International Organization for Standardization (ISO). It is expected that the matter will be referred to a working group soon for action. The issue has also been raised within several national standardization bodies. In the United States, Infrared Thermography, Acoustic emission and recently, vibration have "knowledge" standards promulgated by the American Society for Nondestructive Testing, Inc. (ASNT). While no formal standard for tribology has been accepted, for most people familiar with the technology, the Joint Oil Analysis Program graduates have a clear advantage. In many areas, this is the de facto standard for tribologists. Unfortunately, it is not possible for civilian organizations to take part in this training directly, and must hire their graduates when they leave the armed forces. Even with the fact that international and national standardization bodies are starting to address the issue of technology "knowledge" certification, There are still issues to be raised.

**Role of the user/practitioner:** At the end of 1997, a thread started on one of the bulletin boards run by Reliability Magazine® concerning certification for vibration specialists. This thread was one of the longest running and wide ranging on the board. Most of the participants in the discussion were vibration analysts, many in independent practice. Two things emerged from this discussion.

First, certification is not a guarantee of expertise in actual diagnosis, nor is lack of certification an indication of lack of expertise. Second, there was a general feeling that not all certification is created equal. This thread is not over, and questions raised by some of the participants asked if there should be certification for other techniques, even proactive techniques such as precision alignment and balancing.

As a maintenance professional, it is incumbent on me to ensure that people hired to perform various condition monitoring tasks are not only properly trained, but competent to do the analysis required in any program. It is also my responsibility to ensure that people receive training updates, that in-house training is properly conducted and that performance of the analysis is properly evaluated. In other words, who provides the guidelines that can be used to ensure that our maintenance program is world class, or even first class?

**Unanswered questions:** Assuming that a consensus can be reached concerning certification (knowledge) standards for the various technologies, there is no current standard addressing the broader field of condition monitoring, or the integration of technologies. Another area that is open for question is the lack of standards for proactive techniques.

Obviously, it is up to the end user of any condition monitoring technique to determine what is really necessary in the way of training and certification. Many world class maintenance organizations have splendid internal standards and specifications that detail what a given level of worker will know and be able to do. These organizations tend to be those with a long history of condition monitoring involvement. Many smaller organizations have contracted out their condition monitoring and have excellent rapport with, and confidence in, the contract personnel.

While the development of certification standards may not be of significant importance to these organizations, the industry is growing. The competition from outside firms is driving many managers who read the various journals to seriously consider starting a program. As previously asked, where do they start, how do they get the funding for a program when there are no objective standards to present to the budget committee.

For those people who are just starting a program, or wishing to start a program, a standards system would be of immense value. For those practitioners who would like to expand their own business, these standards should be of value.

**Conclusions:** While I may not have the answers to the questions and concerns raised, I definitely have some opinions about the state of standardization. I am sure that those in the audience have many different opinions. Perhaps if we can get the issue out in the open, we can assist those people who are just starting out in the concept of condition monitoring, and at the same time, help ourselves. This issue will be addressed, sooner rather than later, so now is the time to get involved in the process.