



PRO TIPS TO IMPROVE YOUR PMI PERFORMANCE

SciAps and PMI Concepts have come together to give our customers the best possible PMI results.

Are you getting puzzling results from your XRF or LIBS analyzer on alloy materials and don't know why?

Inconsistent chemistries, carbon equivalents or residuals out of spec without a good explanation?

Questions about analyzer operation and sample prep for handheld X-ray or LIBS?

Paul Lawrence of PMI Concepts has been performing PMI work, and training and certifying inspectors, for over 10 years. He's an expert at all aspects of PMI including XRF, spark OES, and now LIBS technologies. Here, he offers some key tips to improve your performance and get the most out of your instrument.



1 KNOW WHAT YOU DON'T KNOW.

In order to improve your PMI game, you have to improve your mental game. What does that mean? You have to be willing to admit when you don't know something. There is a bit of resistance to intellectual humility in this industry, but if something doesn't seem right, often the best thing to say is, "I don't know" and then ask questions, look things up, get the proper training so that you can get the job done to the best of your ability.

2 KEEP A NOTEBOOK.

Get a small, waterproof notebook to carry in your pocket to keep track of things you don't know. Most job sites are non-permissive environments, so cellphones, cameras, and other tech devices are not allowed. If you have the notebook with you, you can write down questions, record answers once you get them, and note the things you need to learn.



3 NEVER STOP LEARNING.

Success in this business is about constantly learning. When you stop learning new things, you will fall behind, not stay the same, because tech is always moving ahead. So pay attention to new technology and processes in the industry. Keep up by writing down in your notebook things you haven't heard before. Then, look it up or sign up for training courses, which is the best way to stay up to date. It's the same as a yearly maintenance program for your instrument. You won't know what's changed if you're not looking around.

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4 MEMORIZE THE COMMON ALLOYS.

If you memorize the 10 common alloys that you see all the time, it will improve and speed up the entire process. Memorize the specifications and common services, so that if you're hanging upside down by a rope somewhere, you'll understand the chemistry without having to look it up. The key to memorization is repetition. And think about multiple ways to identify alloys: the specifications, the instrument/analyzer, and your personal knowledge. You shouldn't always blindly trust the tech, regardless of how good it is. The human operator must control the process, so having multiple ways to check the tech is important.

6 GET THE UNS BOOK.

The Unified Numbering System book is one of the most important tools available to you. It's expensive, but invaluable to the work. Many times, you are given a trade name for the alloy, and the book's index is the perfect tool for looking up the specifications. Having this book is just as important as surface prep and choosing the correct analyzer for the job.



5 SURFACE PREP IS KEY.

The most costly mistakes in the industry are caused by inaccurate PMI identification, but success starts with basic surface prep. If your surface prep is flawed, it can mess up the work for the entire day. You can contaminate the surface or make a part unusable. One way to understand possible inaccuracies is by analyzing the prepping tool to see what the tool is made of and if it left any of that material on the surface it prepped (for example, stainless steel brushes). A way to avoid this is by using a zirconia alumina disc or a ceramic alumina disc.

7 CHECK STANDARDS & CALIBRATIONS.

Analyzers are not grab-and-go. Most operators lack an understanding of the instrument's internal self-check system or using a check standard to see if the instrument is functioning properly and accurately. You need to do a function check every time you use the analyzer. You will need something with a known chemistry so that you can compare test results. The certification of the check standard's chemistry must be available to make sure the analyzer is accurate. If the certification sheet is missing, you can find it on the manufacturer's website or contact them directly to get a new certification sheet. Two common manufacturers are Brammar Standard and Rocky Mountain Reference Materials.

PMI SUPPORT AND TRAINING



While travel and visitor restrictions persist, **SciAps** is making **Paul Lawrence** available for brief, free consulting slots, in addition to our regularly scheduled training programs.

HOW DOES IT WORK?

Feel free to send Paul data or analyzer results ahead of your time slot, or even test samples live. He will have alloy materials, plus XRF and LIBS analyzers to demonstrate operational and sample preparation techniques — whatever's needed to answer your questions.

TO SIGN UP:

Reach out to PMI Concepts, post questions, and review FAQs at mypmitraining.com/blog, where Paul offers practice materials and Q & A on the latest on PMI techniques and equipment.

For more information, or to schedule a demonstration:

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