

Covalent Academy Episode 21 Q&A

Solving Metrology Puzzles: Case Studies When (1+1) > 2

Presented By: ***Dr. Chris Moore***

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01 Q: When does it make sense to lean on a Metrology partner? What should I look for in a Metrology partner? How do I choose who to partner with?

A. These are all variations on the same question. You first must decide if you are looking for a partner or an analytical service lab.

In the latter case you need to find someone who has the technique desired at a good price and is known to be dependable. Although many customers do not, asking the service lab for a reference or two is acceptable.

In the former case you are looking for someone who can enable your work and you and your team may work more collaboratively with. They should be knowledgeable, have a wide range of solutions available, and be good at listening. The intention should be that this could develop into a long-term relationship which allows you to focus on your core competence and business and allows you metrology partner to provide expertise and leverage as needed.

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02 Q: What are the benefits of leveraging an analytical service partner in other stages of R&D process (besides failure analysis / troubleshooting)?

A. Leveraging a metrology partner allows you to spend your money, time, and effort on the problems core to your business. It takes away the distraction of trying to find instruments, knowledgeable people, interpret results and solve the logistical problems of getting measurements done. One of the primary benefits of having a metrology partner is to allow you to focus on your business needs.

03 Q: How much time is generally saved by troubleshooting with a qualified metrology partner, such as Covalent?

A. There is no real way to quantify this. We know from past experience that the addition of a qualified metrology partner can lead to improved DOE's and choices of measurement technology. These in turn lead to fewer development cycles reducing the overall time to market. How much time is saved depends on the actual circumstances and how the metrology partner is integrated into the customer workflow.

04 Q: For Case Study #1, you mentioned that Spectroscopic Ellipsometry could be integrated as an inline monitor during production.
Was Covalent able to provide a reproducible data analysis protocol for the client to manage this QC process? Or does Covalent manage the inline production monitoring? Can Covalent support either options?

A. Covalent could provide all of this. In this particular case Covalent did do reproducibility studies on test samples and developed the models necessary to analyze the feature of interest. As the client transition to production Covalent can (if needed) survey the tools set available for this measurement and provide recommendations, training and model development for the in-line tools.

05 Q: In Case Study #2, you showed how negligible UV light was transmit through the sample across all cycling trials. Was this indication that UV light was absorbed taken as confirmation that the window discoloration was due to UV irradiation?

A. No, the opposite in fact. It was shown (not detailed in the presentation) that the glass was absorbing the UV but the glass itself was not discoloring. Thus, the classic UV discoloration of glass hypothesis could be discarded.

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Q: After determining an effective QC method for Case Study #2, was the client able to execute and implement this strategy independently?

A. Yes, this involved a change in the way certain elements of the window were formulated. The new formulations did not show this effect.

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