Table 5: MS-based Methods in the QC Lab - What is the State of the Art?

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Scope:
Over the past few years, and particularly with the introduction of the MAM initiative, MS has been considered more and more as a possible method for QC. Various stakeholders have different perspectives on the introduction of MS in QC labs. MS instrument providers are interested by the new potential of deployment. MS specialists embrace the potential of their favorite analytical tool which can replace many classical methods in a single analysis. QC people may be put off by the complexity of the instrumentation and software. Quality people may perceive it as Pandora’s box as the MS instrument may see more than specified, or miss critical deviations when used in a too targeted fashion. The goal of this round table is to capture where people and companies are in their thinking and discuss experience of people that already use this powerful but delicate technology in the context of analytical development and QC. We aim to get a taste of whether MS in QC is the perfect solution or an absolute nightmare.

Questions for Discussion:
1. Is somebody already using MS in QC today and how?
2. What are the expected gains of introducing MS in QC?
3. What are the major concerns around introducing MS in QC?
4. How can MS be used in QC (batch release? Firefighting? Monitoring of batches?
5. What quality attributes are most suited to control using MS in QC?
6. How to implement MS in QC?

Discussion Notes:
Is anyone doing MS in QC already?
No. People are thinking about it. A participant indicates that all MS methods are fully validated, but not used for batch release. Others have plans to pursue it. Several representatives from MS vendors indicated that their customers want to do it, but have several concerns: regulatory demands, complexity of the method, user friendliness. Also concerns regarding fit for purpose are raised.
What are the expected gains of introducing MS in QC?
Business perspective: money, time, etc. Science perspective: More specific info or when no alternative methods exist. Drive towards more detail in regulatory filing, although all participants from pharmaceutical industry indicate that this is not asked for by regulators at the moment. The latter point raised a question from the vendor community: What are things you cannot do without MS? Answer: An example brought to the table was a request from Japan to apply a more advanced identity test for batch release.
What are the major concerns around introducing MS in QC?
Detection by MS is perhaps too sensitive. QC wants simple yes/no answers whereas MS can provide much more information. Other bottlenecks mentioned were: complexity, difficulty to validate an MS method, dependence on single instrument/method, cross-vendor validation may be required, but is almost deemed impossible, sample preparation challenges, instrument to instrument variance when using the same instrument, firmware updates can cause trouble in a

validated environment, need for complicated bridging studies when supplier issues occur. What to do with new peaks during QC analysis?
The MS vendors are interested to hear what we would need to enable MS in QC to be successful. The participants indicate 21part11 compliant software as well as a very simple to use high resolution instrument.
Other options are discussed briefly. For instance the need for QC to have MS scientists employed.
How can MS be used in QC?
Batch release.
What quality attributes are most suited to control using MS in QC?
Experiences are briefly exchanged. Most prominently the participants from pharmaceutical industry see most application in the power of MultiAttributeMethods (MAM).
How will we make the switch to MS in QC?
All participants agree that it should be a business case driven process. If a company sees a large benefit in implementation and a few devoted people are committed to make it happen, it will happen.
The pharmaceutical industry is likely the driver of this process.