

Update

RSSL PHARMA

Contaminants

Pharmaceutical contaminants come in all shapes and sizes. From the black bits that are visible on a white tablet, to the mysterious peaks on the analyst's chromatogram, it is always the case that any contaminant should ring alarm-bells and prompt an immediate and thorough investigation.

Modern analytical equipment makes it much easier to identify contaminants than was the case many years ago. Ironically, it also makes it much more likely that trace contaminants will be spotted. However, even with powerful microscopes, sensitive mass spectrometers and whole range of other sophisticated techniques at our disposal, there is no substitute for the experience of our Technical Specialists when it comes to tracking down exactly what the contaminant is, and how, when and where it occurred.

Our investigations have uncovered all kinds of vulnerabilities with the production, storage and distribution of excipients, APIs,

packaging and finished product that have led to contamination incidents. Chemicals that leach out of plastics, unexpected reactions, and lubricants that drip from machinery are just a few examples of explanations that can range from the obvious to the downright bizarre. There is no common feature to any of these incidents. Sometimes it is down to human error, sometimes just bad luck, and sometimes a combination of unexpected events coming together to create a unique set of circumstances.

One constant does remain though; our ability to respond with immediate analytical support to find out what went wrong and how to put it right.



Solving 'massive' problems

The trace contaminants referred to above, and the degradation products of APIs mentioned in the stability article, can both cause massive problems for pharmaceutical manufacturers. So it is both ironic and appropriate that instrumentation that can measure the tiny mass of a single molecule is absolutely key to resolving these issues.

We are lucky to have two types of mass spectrometer available in our laboratories. One type (known as TOF) is used for investigative work such as identifying unknown contaminants, or looking for degradation products arising from stressing of products being tested in a stability study.

The other (known as triple quad) is a more routine instrument, used to confirm or quantify known impurities, as in a recent study in which our customer suspected that an API had been



cross-contaminated with another API during the manufacturing process. We developed and validated a method to quantify the suspected contaminant in the API. Sample analysis was conducted on a number of batches and all samples and, thankfully, we were able to show that contamination had not occurred.

Having LC-MS capabilities benefits you in two ways. Firstly, it provides a very accurate picture of contamination and degradation peaks in a sample. We can then use the results to develop and validate methods for the simpler HPLC equipment that most customers have in their own laboratories. Similarly, if you are currently using HPLC but need greater sensitivity, or don't have much sample to work with, you can ask us to use LC-MS methods to give you the answers you need. We can also offer UPLC, which is an ultra-high performance liquid chromatography technique, superior to HPLC, providing even greater speed, sensitivity and resolution.

So massive problems do not require you to invest massive amounts of money in finding a solution. You can come to us, and we will use our mass spectrometers to solve the problem.



New face for pharma

Nick Geary has joined us from Catalent Pharma Solutions, as Business Development Manager. Nick has broad experience of the contract manufacturing sector earned during his time at Catalent, and also has valuable lyophilisation expertise gained whilst at Biopharma Process Systems. He will support our scientists during the investigation of contamination incidents and out of specification results.

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Stable partners

We recently boosted our capacity to carry out stability studies in line with ICH guidelines. We have added an ultra-low temperature cabinet suitable for storing bio-molecules at temperatures down to -80°C , and a new reduced humidity cabinet, validated at 25°C and 40% relative humidity.

Stability studies are an essential part of early phase drug development, and the way they are designed and carried out can have a profound impact on the time it takes to get a drug to market. That is why many of you like to have us on board well before the trial gets underway, because we can help to ensure that the protocol is right from the start, and that the stability study will fulfil all the requirements for licensing a product for sale in many markets.

Training development

Although our QP training modules cover biopharmaceuticals alongside more traditional pharmaceuticals, exactly as the study guide requires, there are specific quality and regulatory issues around biotech that merit some extra attention. That is why we have now introduced an additional, optional work-shop into our QP training programme. We ran the first of these workshops very recently, and the event proved so successful that new dates have already gone into the calendar for next year.

Just like all the training we offer, the workshop gets you to the heart of the subject as quickly as possible. It is offered as a one-day session, meaning the training can be completed without a lengthy or expensive spell away from work.

The same goes for all our other courses, such as Lead Auditor training, Good Distribution Practice and Responsible Persons. All of these courses are proving extremely popular thanks to an intensive, practical and interactive structure that means learning is completed quickly and can be instantly applied back in the workplace.



Competition

Which one of these lyophilised products has undergone a eutectic melt during primary drying?



Email your answer to pharmacompetition@rssl.com by 31 October 2010.

All correct entries will be placed in a prize draw for a bottle of champagne. The winner will be notified and the correct answer will be sent to all entrants by email.

Method validation

Watching US TV programmes, it is tempting to believe that modern laboratory equipment is capable of anything. That is far from the case, and whenever a real-life laboratory like us does any kind of test for the first time, there is a whole lot of work that needs to go in to method development and method validation.

The validation process is vital. It is the only way to be sure that a particular method is fit for purpose for the particular matrix product. After all, there is no point in using a method that gives meaningless results.



Several elements are required to show that a method is specific, linear, accurate and precise and that detection limits, quantitation limits and range are clearly defined. So that means a lot of work for the laboratory in carrying out the necessary testing and providing the necessary documentation.

Just as validation is needed for a new method, verification is often needed for a standard or collaboratively tested method that has been validated by others. Nothing can be taken for granted. We subscribe to the view that analysis is only worthwhile if the method is guaranteed to give an accurate, reliable result. So we do whatever it takes to give those guarantees.

Key dates for your diary – forthcoming training courses

External (Supplier) Auditing	21 – 22 September 2010
Responsible Person	2 – 3 November 2010
QP Quality Management Systems	16 – 18 November 2010
GMP (3 day)	23 – 25 November 2010
QMS Auditor/Lead Auditor (IRCA Ref A17129)	29 Nov – 3 Dec 2010

RSSL's Services

Auditing	Method Development
Biopharma Testing	Microbiology
Clinical Studies	Natural Products
Consultancy	Pharmacopoeial Testing
Contamination Investigation	Physical Properties
Emergency Response Service	Stability Management
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