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— Deidre Mitchell, Microbiology Development Manager, Unilever

SUMMARY

Unilever recently updated and harmonised its rapid screening methods worldwide to standardise the testing of its Hygiene and Personal Care (HPC) products with Celsis AMPiScreen.



Unilever’s Global Roll-out of Celsis AMPiScreen® Brings Expected – and Unexpected – Benefits

OVERVIEW

With nearly 20 years of experience using Celsis rapid detection systems at more than 40 locations around the world, Unilever recently updated and harmonised its rapid screening methods worldwide to standardise the testing of its Hygiene and Personal Care (HPC) products with Celsis AMPiScreen. AMPiScreen is a faster and more advanced assay than the previously used Uni-1 rapid microbial detection kit, which was originally adopted in the early 1990s.

The roll-out of AMPiScreen was completed in 2012, across a wide range of products including toothpastes and dental rinse; face, body, hand and hair washes; skin creams and lotions; household cleaners; laundry detergents and fabric conditioners.

The new assay has already proven itself at Unilever by delivering the expected, time-saving results, plus some unexpected – and entirely welcome – additional benefits. These include 24-hour detection of **bacteria, yeast and mould**; a greater sensitivity to *B. cepacia*; a good fit for testing some raw materials; and clear, pass-fail test results that make it easy to work within the manufacturing environment.

THE NEED FOR GLOBAL HARMONISATION

Unilever’s corporate roots date back to the 1890s – more than 100 years of growth and change, both organically and through acquisition. As with most international companies, global methods and procedures are required to align acquisitions to the main business and to reduce complexity, which in turn allow for a smooth and efficient business. Unilever now has a vast array of internal standards and operating procedures.

The company recently sharpened its focus on 21st century consumers with the goal of delivering brand value consistently around the globe. One current project to support a consistent brand reputation is the harmonisation of Unilever’s testing programmes to ensure product quality worldwide.

It did not take long for the company to realise that quality control meant different things, globally, in terms of the time required to test and release products. “The majority of our products technologies were on 24 hours [enrichment]; whilst some specific products technologies were on 42 or even 48 hours”, explained Peter Jay. “It varied a bit by product technology group and a bit down to

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off for Uni1 was 1.4). While RapiScreen showed an improvement, AMPiScreen showed substantially improved sensitivity with 72% of the results in the overload category.

For Unilever, clarity of results became a clear benefit, especially when a positive contamination would be near a cut-off value. The increased sensitivity provided by AMPiScreen over the ATP-only kits reduces uncertainty.

“With the use of AMPiScreen, when something’s positive it’s really positive”, said Deidre Mitchell. “There’s really no interpretation necessary. That’s a real benefit”.

Peter Jay agrees. “A lot of factories have other people trained to do microbiology jobs. If you get a very clear end point – a black and white answer, rather than a gray answer that someone has to interpret – it really helps. The value of that shouldn’t be underestimated”.

IMPLEMENTATION IS CHANGE

As when any new technology or technique is introduced, there are to be expected some internal obstacles to overcome.

“At sites where we’ve implemented, the big concern was the greater sensitivity of the method”, said Peter Jay. “[There was concern] we would see an increase in false positives because this method is generally more sensitive and therefore operator errors need to be minimised. However, we haven’t seen that”, he said. “The operator training is important and has been a main focus”.

UNFORESEEN BENEFITS

Validating the AMPiScreen mould protocol proved that Unilever could reliably detect mould in 24 hours instead of the 48 hours necessary with the Uni-1 or RapiScreen kits. The company easily recognised the potential.

“Now that we know we can reproducibly detect yeast and mould with AMPiScreen in 24 hours”, said Deidre Mitchell, “it’s expanded our ability to test certain raw materials with Celsis that we did not test before”.

Because AMPiScreen offers faster detection plus signal amplification of only microbial ATP, “we have the potential for fewer false positives coming from ATP being present in the raw materials”, said Peter Jay.

Unilever plans to implement rapid testing of materials as a phase two project starting in 2013. “It’s a benefit we recognise, but not something we’ve fully implemented at this moment” Peter Jay explained.

ACHIEVING RESULTS

The smooth roll-out of the AMPiScreen assay required more than a year of pre-work planning, validation of 500 products, and hands-on operator training at Unilever facilities worldwide. Most companies, regardless of size, would find such a project daunting.

“We didn’t have the internal resources and ability to send microbiologists from the central laboratories around the world”, said Peter Jay. “To take on all the validation, all the training; I personally think that would be a major barrier of implementing any rapid method or a change program like this without having a partnership. To do it on a global level with lots of factories would be extremely difficult”.

Unilever made good use of the fact that Celsis has the infrastructure and expertise to include installation, training and support with its systems. The company has application labs in the U.S. and Europe dedicated to providing expert validation services for new and existing customers.

“From my perspective. I don’t think we would have attempted to do this without our partnership with Celsis. Without that level of support, it would have been extremely difficult.”

— Peter Jay,
Manager, Hygiene & Personal Care Products, Unilever

For Unilever, validation services, method transfer and on-site training provided by Celsis’ Technical Accounts Managers ensured a smooth hand-off to the Unilever lab staff at each location. The staff continues the testing protocol in accordance with Unilever’s now-harmonised standard operating procedures.

Unilever & Celsis Partnership

AMPiScreen Advantages

- Harmonised global testing for 24-hour release
- Increased signal-to-noise ratio for greater sensitivity
 - Less ambiguity of results
 - Improved detection of *B. cepacia*
 - Tests highly pigmented, opaque, and viscous products
- Yeast and mould detection in 24 hours
- Ability to screen raw materials

For more information on the Celsis Amplified-ATP system, please contact Celsis:

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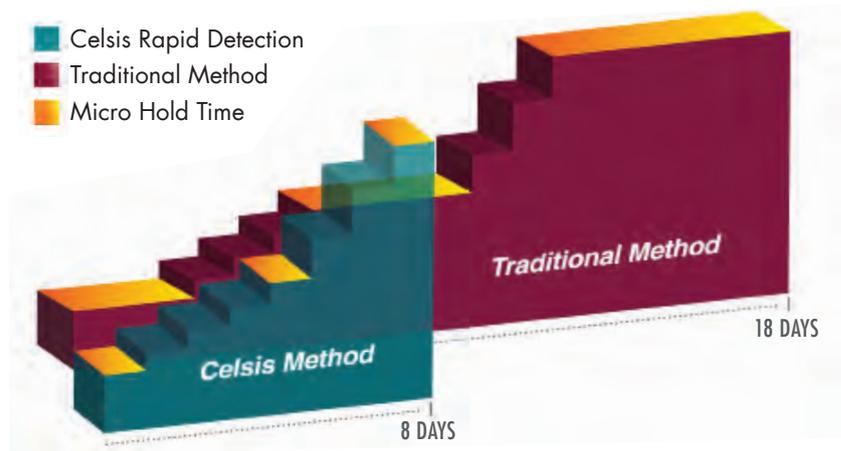
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2 doi: 10.5731/pdaipst.2011.00793 PDA *Journal of Pharmaceutical Science and Technology* September/October 2011 vol. 65 no. 5 535-543

RELEASE PRODUCTS FASTER WITH CELSIS AMPISCREEN

SHORTER PRODUCTION CYCLES FREE UP WORKING CAPITAL

By reducing the length of time products are detained for microbial testing, you are shortening the production cycle, reducing the cost of manufacturing and freeing up significant working capital.



PROJECTED SAVINGS

Projected savings for a single facility in changing from a 4-day micro hold to a 48 hour or 24 hour hold, based on standard industry figures.



5-YEAR NET PRESENT VALUE	\$223,927	\$558,256
PAYBACK PERIOD	9.49 months	8.2 months
CONTAINMENT SAVINGS	\$31,250	\$46,875

DID YOU KNOW?

TOP-PERFORMING COMPANIES
OPERATE WITH ABOUT **50%**
OF THE WORKING CAPITAL AND
HOLD **<50%** OF THE INVENTORY
OF TYPICAL COMPANIES*

*15th Annual Working Capital Survey by The Hackett Group's REL Consultancy and CFO Magazine, as reported in Supply & Demand Chain Executive, 23 July 2013

A typical plant investing in a rapid detection system sees an average 5-year net present value of \$500,000 and a return on invested capital in just 6–9 months.

A QUICK YES OR NO TELLS YOU IF PRODUCT CAN BE RELEASED

Traditional testing requires you to hold product for 4 days or more to see if anything grows. Only Celsis gives you results for bacteria, yeast and mould in 24 hours.



 **Celsis**
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