

3M *Micro Messenger*

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New 3M™ Petrifilm™ Information Management System Automatically Counts Bacterial Colonies

A large vegetable processing plant in the Midwest has reduced by half the staff time spent on manually counting bacterial colonies on 3M™ Petrifilm™ Aerobic Count plates. With 3M's new Petrifilm™ Information Management System, the QA department now has extra time to generate reports a full day sooner, improving the timeliness of their analysis and response.

This latest technological innovation from 3M not only quickly counts colonies, it also digitizes the data, allowing users to view and analyze current results, retrieve historical data in seconds and display trends. The Petrifilm Information Management System helps increase productivity, decrease operational costs, validate Hazard Analysis at Critical Control Point programs and enhance information management capabilities. Compatibility with many of today's complex LIMS programs also allows the 3M system to transfer data into those programs as a direct instrument interface.

"Instead of staff spending time on basic operations such as counting plates, recopying results, organizing paperwork, searching through files for past results and entering data into spreadsheet programs for graphs, food processing companies can now spend more time analyzing and understanding critical information for process or product improvements," said Karen Mullery, market development supervisor, 3M Microbiology Products.

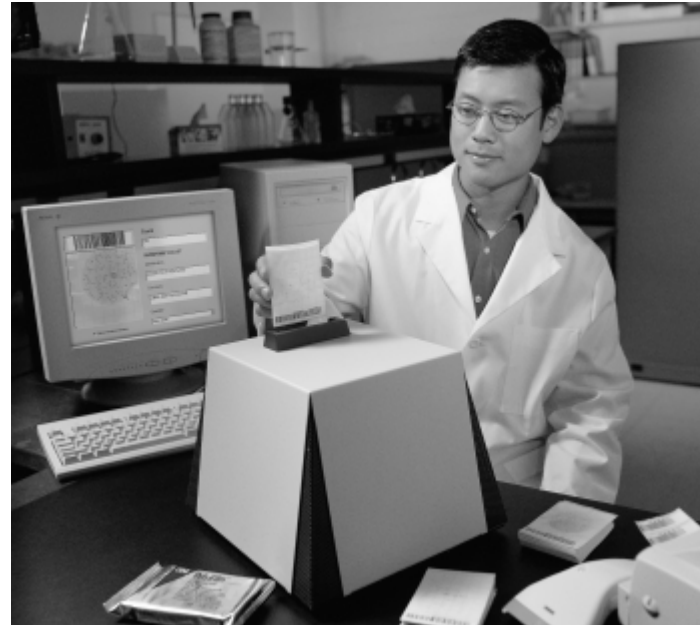
Quality assurance labs generate massive volumes of data. When well organized and analyzed, this data can provide important feedback for quality improvements in the plant. By automating information management, easier, faster and more accurate information is available.

"Companies with a good command of their information management will be the strongest," said Mike Plumb, product manager, 3M Microbiology Products. "The 3M Petrifilm Information Management System provides

customers with one of the most modern approaches to microbial testing and reporting. When information is captured on the system, it is easy to draw trend graphs once a week, for example, to show how effective a cleaning schedule is," he noted. "When such information is hand recorded and filed away, it is much harder to discover trends and initiate early intervention steps." (See trend graph example on back page.)

The system consists of a compact, tabletop plate scanner, customized software and personal computer. An optional bar code system is available to provide further control over the sampling program.

Automated aerobic plate counting increases accuracy by decreasing eyestrain errors that may occur when large numbers of colonies and plates are manually counted. Lab productivity also benefits



in both the counting and recording of results. The data is automatically entered into a computer, so report and trend data are instantly available. There is no waiting for data to be entered into a computer or transcribed into lab reports.

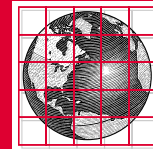
"Because the system sends count information directly into a database, human errors that may occur in the transcription of data from a lab sheet into a log book or into a computer database, for example, are significantly reduced," Mullery said. "The use of bar codes also helps reduce errors."

Studies show that manual keying of information has an error rate of approximately one error for every 300 characters entered (*The Bar Code Book* 3rd edition, Helmers Publishing, by Roger Palmer). However, when bar code scanning is used, such as the optional bar code system available from 3M, to identify the product, date, dilution and other information about

Bar Code Configuration Example



Continued on back



3M Microbiology Expands International Scope

With the ever-increasing demand for microbial testing around the world, 3M Microbiology's international business has recently been organized into seven different regions. Each region will be led by a regional business manager with the program headed by Jerry Bushong, international manager, 3M Microbiology Products.

"We're really excited about the high level of professionalism that these individuals will bring to their respective areas," said Jerry Bushong. "We are now in the position to offer even better customer support and strengthen our communication between regions. In this way we can truly be a proactive multi-national business partner with our customers and provide the resources to support them."

The regional business managers are:

Daniel Augusto, *Europe/Middle East*

Jerry Bushong, *Africa*

Pascual Garcia Huerta, *Latin America*

Cindy Knight, *Canada*

Takatoshi Moriyama, *Japan*

Terence Soh, *Asia*

Karen Tracey, *Australia/New Zealand*

If you would like more detail on how to contact these people, e-mail us at microbiology@3M.com.

Meet the U.S. Telephone Sales Team!



Chris Scullen and Robin Nelson

We thought now would be a perfect time to introduce you to our 3M Microbiology Telephone Account Representatives—Robin Nelson and Chris Scullen. Their goal is to provide personalized sales assistance and services to their customers and complement the efforts of our 3M Microbiology U.S. Field Account Representatives.

Robin Nelson actually developed and started the telephone sales program in 1990 and has been working closely with 3M Microbiology customers ever since. With Terri Paulson's move into our marketing department, Chris Scullen is a new face in our group—although she's not new to 3M with over 10 years of telephone sales experience. Both Robin and Chris can be reached at 1-800-437-6265 from 8:00 AM–5:00 PM Central Time.

NCIMS Approvals for 3M Microbiology Products

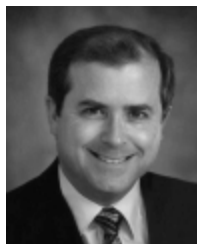
Three of 3M Microbiology's accessory products have met National Conference of Interstate Milk Shippers' (NCIMS) standards for official testing under the Interstate Milk Shippers (IMS) and FDA Dairy Lab Certification programs.

The NCIMS Laboratory Methods Committee approved the 3M™ Petrifilm™ Information Management System (PIMS) for inclusion on the FDA 2400 Milk Laboratory Evaluation Form. The system was judged to be an equivalent means for the enumeration of the 3M™ Petrifilm™ Aerobic Count Plate (see story on page one).

3M™ Electronic Pipettors, the pre-programmed instruments for diluting and pipetting onto any microbial test such as 3M™ Petrifilm™ Plates and 3M™ Redigel™ Tests, have been approved for use in the IMS Grade "A" Pasteurized Milk program. The 1ml and 5ml pipettors fulfill requirements under "Dilution measurement, pipettors" in the Milk Laboratory Evaluation Form, Series 2400.

In addition, the 3M™ Attest™ Biological Indicator is considered an acceptable sterilization process monitoring alternative that contains *Bacillus stearothermophilus* and meets the most current 2400 form language.

Automation and Lab Management



By: Dr. John
R. Joyce
Contributing
Editor, *Scientific
Computing and
Instrumentation*

You may bless them or curse them, but if you work in a laboratory you have almost certainly heard of Laboratory Information Management Systems. Better known as LIMS, these systems have evolved from relatively simple sample tracking systems to become the backbone of laboratory operations.

The basic concept is simple, a LIMS provides a way to track samples moving through a laboratory and the test results generated. However, LIMS have evolved to be much more than this. If you question LIMS users, odds are that you will get as many different definitions of what a LIMS is, as users you ask. Which definition is correct? They may all be, since no two laboratories have exactly the same needs.

Despite this, there are a number of features that I feel a program must have before it can legitimately be called a LIMS. Foremost of these is that it must maintain data integrity. At the most basic level it should possess a detailed audit trail that not only shows who made system changes and when, but also shows what the values were changed from and to. Without this, it is nothing more than a glorified sample tracking system. Other features commonly found in a LIMS include:

- Instrument interfacing/data import capabilities
- Ability to perform internal calculations on data
- Ability to track sample location and analysis status
- Ability to generate analysis reports; to convert data to information
- Ability to interface with Enterprise Computing Systems (SAP, etc.)

The benefit of some of these features is obvious, others require a bit more thought. Given the goal of boosting lab productivity, it is obvious that instrument interfacing would be desired to minimize the amount of data entry an analyst must perform. What is not so obvious, but is perhaps more important, is that instrument interfacing also reduces the number of transcription errors that inevitably occur with manual entry. Being human, no matter how many people validate the data, some errors will slip through. In some labs this might result in just minor embarrassment, in other labs it might cost someone their life!

A repository of data is of only limited value. Yes, it might speed up retrieval of data if a customer has a question, but what you want out of the system is information. An analyst should not have to deal with the drudgery and potential error introducing process of calculations, the system should do that for them. An analyst should not have to fight the system to extract useful information from it. It should also come with reporting tools designed to simplify the extraction of information. If you become involved in a LIMS installation project, you'll rapidly discover that the most severe problems in achieving a successful installation are generally people problems. Anything that makes a system more difficult to use is going to make it more likely that the project will fail.

As LIMS have evolved and become easier to use, their feature set has become richer while their prices have fallen. Today even the smallest lab can afford a LIMS of some kind. The most recent hot feature has been Web access, the ability to log samples or check analysis status over the Internet. This feature has been in demand because it can take pressure off lab staff by allowing the customer to log their own samples in (also reducing possible processing transcription errors) and look up their own results. This has not been without its downside, as it can produce nightmares with data security. An almost unanticipated benefit is that a Web interface makes the LIMS effectively platform independent; no

longer do you have to have a particular type of computer or operating system to run your LIMS client on. With a Web browser as the client, you can effectively run on anything!

A LIMS, by itself, offers only limited benefit to an organization. Without an interface with other systems, it becomes just another example of what are referred to as 'islands of automation'. To maximize the return, the LIMS must interface with the other enterprise computing systems. Concrete examples would include having it talk with the inventory system so that new supplies were ordered as needed. It should talk with the accounting system so that customers are billed. There might be tie-ins with payroll or any number of other departments.

Much information on LIMS systems is available via the web on the Internet. It is the rare LIMS vendor that does not maintain a Web site. In addition to the unavoidably biased vendor Web sites, there are a number of independent Web based sources of information. For a good base of general information on LIMS vendors, consultants, and related activities you might want to check out Helen Gillespie's *LIMSource*. If you are looking for in-depth information on specific LIMS systems, check out the LIMS Web site maintained by the journal, *Scientific Computing and Instrumentation*. A useful resource is Dr. Jo Rita Jordan's *Analytical Consumer* newsletter, LIMS survey issue.

No matter where you stand in laboratory operations, be it an analyst, manager, or customer, the impact of LIMS will only continue to increase.

Web Sites

Analytical Consumer
<http://world.std.com/~jjordan>
LIMSource
<http://www.LIMSource.com/>
Scientific Computing and Instrumentation LIMS Site
<http://www.lims.scimag.com>

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a sample, the error rate drops to one in three million characters (University of Pittsburgh, Automation Data Collection Laboratory).

The current Petrifilm Information Management System scanner counts the Petrifilm Aerobic Count plate. However, the bar code system from 3M can be used to custom label other tests and Petrifilm plate products to capture important sample information. So when it is time to read a test, the bar code is simply scanned and the information is automatically entered into a database without having to be reentered or retyped. Besides enhancing lab productivity and reducing errors, the bar code program enables tracking samples and checking the status of assays.

Staff at one beef processing plant in Kansas where the Petrifilm Information Management System has been installed say they could never go back to manual enumeration of aerobic bacterial colonies, according to Mary Mosbey, professional services representative for 3M Microbiology Products.

For more information about the Petrifilm Information Management System e-mail us at microbiology@3M.com.

