

New Application For 3MTM PetrifilmTM Test Kit-HEC Eliminates Broth Enrichment Step



A dramatic improvement in the method for *E. coli* O157:H7 testing for environmental and surface samples puts the enrichment step directly onto the 3MTM PetrifilmTM E. coli Count plate. This method eliminates the broth culture enrichment step. The result is a much easier and safer way to accomplish *E. coli* O157:H7 testing.¹

3M pioneered product sampling with 3M Petrifilm Test Kit-HEC for Hemorrhagic *E. coli* O157:H7 using an enrichment culture. Under the standard application, samples are incubated in an enrichment culture, then inoculated and incubated on the Petrifilm E. coli Count plate for 26 to 28 hours to determine contamination.

Now 3M has announced a new application that is unmatched by any product currently on the market. This

new application is a processing environment test. Because *E. coli* O157:H7 is found on the surface of the meat or involved product, not inside the product, there is no reason to enrich a whole piece of meat for testing.

A recent study has demonstrated that the testing of a meat surface is a better indicator of *E. coli* O157:H7 surface contamination than testing of the ground meat.*

Simple Swabbing Procedure

To perform this test, swab the meat or equipment area to be tested. Rinse the swab and add the rinses to a Petrifilm E. coli Count plate. After 24-hour incubation, perform the HEC test on the plate using the reagents supplied in the Petrifilm Test Kit-HEC. Total coliforms, total *E. coli*

and total presumptive O157:H7 are recorded.

Improved Safety

Safety is greatly enhanced by the simple swabbing procedure without a broth pre-enrichment. Any pathogens are contained within the closed Petrifilm plate. This method eliminates a common concern of contamination when performing the critical test for *E. coli* O157:H7.

Swab contact testing is recommended for the surface of the meat before it is ground into hamburger, for example, and for equipment and work surfaces.

This new application is currently being used to test animal carcasses right at the slaughtering plant. It is an easy-to-use, reliable method for suppliers to meet HACCP principles by surface testing with Petrifilm Test Kit-HEC prior to shipping product to processors.

For more information, call 3M Microbiology Products at 1-800-228-3957. For technical support, call 1-800-328-6553.

References

1. Calicchia ML, Reger JD, Wang CIN, Osato DW. Direct Enumeration of *Escherichia coli* O157:H7 from Petrifilm E. coli Count Plates Using the Petrifilm Test Kit-HEC Without Sample Pre-Enrichment. *Journal of Food Protection*, October 1994, Vol. 57, No. 10, pp 859-864.

* Data is available upon request.

Come see
what's new from
3M Microbiology Products,
at the IFT Show,
June 3-7. We'll be at
Booth #151.

Common Questions Concerning Environmental Monitoring Procedures

3M Petrifilm plates are convenient, reliable methods for detecting environmental microbial contamination. Our technical staff has compiled the most commonly asked questions concerning environmental monitoring with Petrifilm plates. If you have additional questions or would like a copy of 3M's Environmental Monitoring Procedure sheet, please call 1-800-328-6553.

Q. Which Petrifilm plates can be used for environmental testing?

A. The following Petrifilm plates can be used for environmental testing:

- Petrifilm Aerobic Count plates
- Petrifilm Coliform Count plates
- Petrifilm E. coli Count plates
- Petrifilm Test Kit-HEC for *E. coli* O157:H7
- Petrifilm Yeast & Mold Count plates

Q. What are the environmental procedures for which Petrifilm plates can be used?

A. • Air Sampling • Direct Contact • Swab Contact

Q. Can I use my regular dilution buffer with Petrifilm plates for environmental procedures?

A. For air sampling or if sanitizers are not present, any of the following buffers may be used:

- Standard Methods buffer
- Butterfield's buffer,
- 0.1% peptone water
- Lethen broth

Do not use buffers containing thiosulfate or sodium citrate. If sanitizers may be present, use lethen broth for both the direct contact and swab contact methods.

Q. How do I use Petrifilm plates for air and direct contact environmental testing?

A. Moisture is necessary for growth of microorganisms on Petrifilm plates. Before using Petrifilm plates for air sampling or direct contact, hydrate plates with 1 ml of appropriate diluent (see previous question). For the air sampling method, it is not necessary for Petrifilm plate gel to be fully formed. For the direct contact method, the gel should be completely formed. Refer to the Petrifilm plates Environmental Monitoring Procedure sheet for complete details. For your convenience, Petrifilm plates can be prepared ahead of time. Store hydrated Petrifilm plates in a sealed container. Hydrated Petrifilm Aerobic Count plates may be refrigerated up to 14 days. Other hydrated Petrifilm plates may be refrigerated up to 7 days.

Q. How do I report results?

A. Air sampling and direct contact methods results are reported as:

Count/Area of Gel Surface Exposed

Direct Contact Method	Air Sampling Method*
PAC count/20 cm ²	PAC count/40 cm ²
PCC count/20 cm ²	PCC count/40 cm ²
PEC count/20 cm ²	PEC count/40 cm ²
PYM count/30 cm ²	PYM count/60 cm ²

**Top and bottom films are exposed during air sampling.*

Swab contact method results are reported as: Count/Area Sampled

This is determined by multiplying the plate count times the volume of diluent used (i.e. total number of mls of swab diluent).

Environmental and other Testing Detailed in New USDA ‘Mega-Reg’



By John Rice
Director of Technical
Services
Sanderson Farms, Inc.

The United States Department of Agriculture (USDA) Food Safety and Inspection Service released a proposed rule, officially titled “Pathogen Reduction; Hazard Analysis Critical Control Point (HACCP) System,” on Feb. 3, 1995. The rule as printed in the Federal Register is 115 pages long. It has been nicknamed the “Mega-Reg” by those in the meat and poultry industry, if not for its length, then for its wide ranging proposals to assure the safety and wholesomeness of foods.

The Mega-Reg is a multi-faceted proposal covering sanitation regulations, antimicrobial treatments, antimicrobial testing, new time and temperature requirements and HACCP plans. While applauding the intent of the reforms, the industry has raised some concerns about the scientific basis for changes, overall impact on the incidence of illness in humans, inspection capabilities and public access to testing records.

As we prepare to understand the impact of this proposed rule on our industry, I have reviewed the plan as well as summaries provided by the National Broiler Council. In addition, I recently attended a briefing on the proposal presented by the USDA in Dallas, Texas.

The proposal does not come as a big surprise. Many of the regulations

are already part of normal operating procedure for a great number of meat and poultry companies. While most companies may already be doing many of the suggested tests, they may not be doing them in the exact manner nor with the documentation that would be required under the USDA proposed regulations.

One major concern about the regulations is uniform enforcement. As currently written, individual USDA inspectors are granted a great deal of discretion. Even when regulations are spelled out in minute detail, differences in interpretation of results by different inspectors in different regions of the country is possible. Precise guidelines for inspectors are needed for the verification of HACCP programs.

Another area of concern is whether the existing USDA inspection service can handle the increased workload that would be generated by a whole new layer of regulations. To date, there has been no proposed change in the inspection service to accommodate the old as well as the new regulations.

Lack of Scientific Evidence

The fundamental shortcoming of the proposed rule is a lack of scientific evidence that implementation of the various regulations would actually reduce the incidence of human illness. For example, the proposed rule sets a target level for Salmonella reduction. For poultry, the incidence of Salmonella must be decreased from 25 percent to 12.5 percent. However, no data exists to show that such reduction would actually lead to

lower incidence of illness in people. According to the Center For Disease Control and Prevention (CDC), reported cases of Salmonella in humans has been declining over the past several years. This decline may continue with or without the implementation of new regulations.

Steps already taken by the food industry to reduce Salmonella, together with increased awareness by public have already had great impact. The new regulations do not guarantee a further decline, but they do impose a greater burden on food processors.

Environmental Testing

According to the proposed rule, tests to verify the efficacy of cleaning, sanitizing and disinfection procedures should be part of sanitation standard operating procedures. This is the first time the USDA has required pre-operational microbiological testing for slaughter plants. This method of testing, however, is left up to the plant. The frequency of monitoring and standards also are not defined.

The majority of meat and poultry possessors already include some level of microbiological environmental testing as part of their sanitation program. This regulation would require regular environmental testing and USDA verification for all plants.

The USDA document also does not address the issue of public access to plant-generated microbiological testing records. Currently, these records are not subject to verification by the USDA and are not public.

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There is a concern that misinterpretation or misuse of information may occur if daily test results are taken out of context. Any plant could have a day when a problem is detected and immediate action taken. Even though corrective action assured food safety, the outcome of misinterpreted or incomplete information may lead to unwarranted concern by the public.

We believe that an ongoing dialog between the industry and USDA can result in meaningful reform that will assure consumers of the safest possible meat and poultry supply. The industry is invited to comment on the proposed rule until June 5, 1995. The final rule is expected by early 1996 with implementation within 90 days.

Future Trends

I think the next wave of reform will reflect outbreaks of foodborne illness. Following the recent outbreak of *E. coli* O517:H7 in ground beef, new regulations were issued concerning this meat product. In the future, I predict that more pathogen-specific regulations may be written in the event that problems occur with another pathogen in meat or poultry. Five years ago, we would never have suspected such an outbreak with *E. coli* O157:H7. The same could happen with another emerging pathogen about which we know very little at the present time.

3M Microbiology Products will be Exhibiting at the Following Trade Shows and Conventions...

April 10-15	International Food Technology Exhibition	Korea
April 24-26	5th Food Ingredients Asia	Japan
April	Congreso de Metodos Rapidos en Microbiologia Industrial – biocontrol	Colombia
May 15-19	NZIFST, Joint New Zealand & Australia Conf	New Zealand
June 3-7	Institute of Food Technologists	USA
June 13-15	3rd Tokyo International Seafood Show	Japan
June 20-23	Fispal Feira Internacional da Alimentacao	Brasil
June 21-22	Dairy Technology Conference	New Zealand
June 23-27	Taipei International Food Industry Show	Taiwan
July 17-21	XII Congress Nacional de Laticinios	Brasil
July 25-28	Feira Dos Fornecedores para Industria de Laticinios	Brasil
July 30-Aug 2	International Association of Milk, Food Environmental Sanitarians	USA
Aug.	Congreso de la Sociedad de Ciencia y Tecnologia de Alimentos	Colombia
Aug 27-Sep 2	Congreso Internacional/Congreso Brasileiro de Microbiologia	Brasil
Sep 6-8	6th Food Design Show	Japan
Sep 12-15	Expo Alimentos	Mexico
Sep 17-20	Association of Analytical Chemists	USA
Sep 21-24	American Meat Institute	USA
Sept 24-27	2nd Malaysian Int'l Food & Related Technology Exhibition	Malaysia
Sept 24-28	Australian Society for Microbiology	Australia
Oct.	Korea Dairy Academic Conference	Korea
Oct 23-24	16th Japan Food Microbiology	Japan
Nov 4-8	Food and Dairy Expo (Mega show)	USA

To order Petrifilm Plates, call **1-800-328-1671**.
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