



The miracles of science™

**RELEASE PRODUCTS FASTER AND WITH GREATER
CONFIDENCE—*E. COLI* TESTING SOLUTIONS FOR ALL
YOUR NEEDS WITH THE DUPONT™ BAX® SYSTEM.**

E. COLI—A CONTINUOUS THREAT.

Of the hundreds of strains of *Escherichia coli* (*E. coli*), most are harmless and many can be found in the gastrointestinal tract of healthy humans. However, some Shiga toxin-producing *E. coli*—or STEC—can cause foodborne illness with serious medical complications and even death. Although anyone can become infected by consuming food or water contaminated with pathogenic STEC, the very young and the elderly are at greater risk of developing serious, life-threatening illness, such as hemolytic uremic syndrome (HUS). The U.S. Centers for Disease Control (CDC) estimates 265,000 STEC infections occur annually in the United States.

E. coli O157:H7 (also called O157 STEC) was first identified as a pathogen in 1982. It is the most commonly identified STEC in North America. Typically associated with ruminant animals, the pathogen can also be transported by birds and other hosts to farm environments. Focus and interventions by the food industry are helping to reduce infection rates from this organism.

However, there is a growing concern about the increasing number of illnesses linked to non-O157 STEC. In fact, the CDC now estimates that 64% of foodborne infections from Shiga toxin-producing *E. coli* are caused by non-O157 serotypes. Advances in rapid detection methods help provide for better identification of non-O157 STEC and the virulence factors associated with illness. The U.S. Department of Agriculture (USDA) has classified six non-O157 STEC serogroups (*E. coli* O26, O103, O45, O111, O121 and O145) as adulterants in non-intact beef and trim.

E. COLI AFFECTS VARIOUS FOOD SECTORS.



MEATS

Outbreaks caused by *E. coli* O157:H7 have been frequently associated with ground beef, beef trim and beef products, which can become contaminated during slaughter or processing. A recall of ground beef in 2010 was associated with *E. coli* O26.



PRODUCE

E. coli O157:H7 has been linked to spinach and lettuce in recent outbreaks. Non-O157 STEC has been implicated in sprouts contaminated with *E. coli* O104 and lettuce contaminated with *E. coli* O145.

WHY CHOOSE THE BAX® SYSTEM?



The *E. coli* portfolio represents just a few of the many innovations in testing applications from DuPont Food Diagnostics for use with the BAX® System. This automated DNA-based system breaks down samples at the genetic level, using the power of PCR to detect bacteria and other organisms.

BENEFITS OF EVERY BAX® SYSTEM INCLUDE:

Confidence—Clear and reproducible results, independent of operator technique.

Reliability—Automated cycling, detection and analysis without the need for expert skills.

Ease of use—Simplified sample prep with minimal hands-on time.

Speed—High capacity load, up to 96 samples per batch.

Convenience—Pre-packaged PCR reagent tablets provide consistency, stability and long shelf-life.

Electronic data—LIMS-compatible system allows for easy storage, retrieval and printing.

Support—Customer-focused dependability to answer your questions and keep your operation running smoothly.

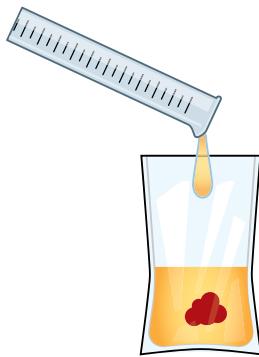
SCIENCE-POWERED INNOVATION AND COLLABORATION

Because fast, accurate testing results are critical for delivering safer food products to consumers and more profitable growth for food companies, we develop advanced genetics-based diagnostics into simplified applications that address today's most pressing food safety issues.

Our technology is not about small, incremental changes; it's about innovation that can truly revolutionize the science of

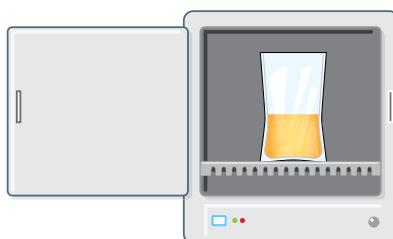
food safety. DuPont has the world-class technology and history of market innovation to address the most critical food safety challenges. We also have a strong track record of successful collaboration with governments, universities and industry to help protect the global food supply.

EASY-TO-USE PROCESS



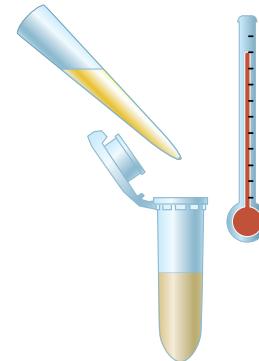
1 Enrich

Collect your sample and mix it with enrichment media.



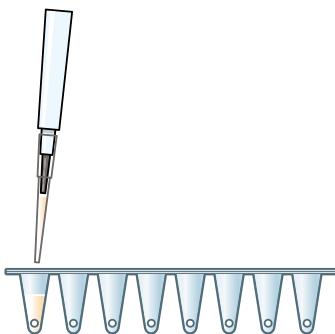
2 Incubate

Allow the sample to heat for designated time.



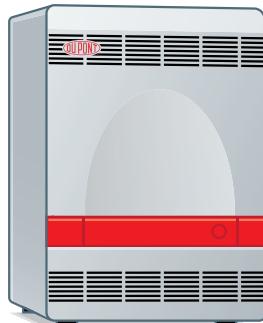
3 Lyse

Add enriched sample to lysis reagent, then heat cluster tubes to rupture the cell wall and release DNA into the solution.



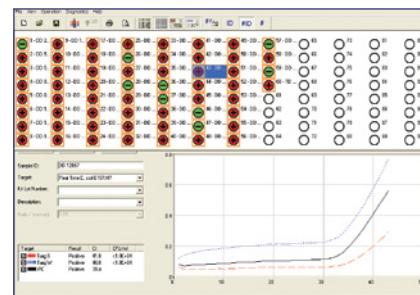
4 Hydrate

Transfer lysate to the tablet in each PCR tube.



5 Load

Place the PCR tubes into the BAX® System instrument. You can then work on other tasks while the BAX® System amplifies and detects.



6 Review

Results are displayed as clear yes or no icons in a little over an hour for the real-time assay.

A SOLUTION FOR ALL YOUR TESTING NEEDS. BAX® SYSTEM E. COLI ASSAY PORTFOLIO.



REAL-TIME PCR ASSAY FOR E. COLI O157:H7

PN D14203648 – 96 tests

Developed in collaboration with the USDA Agricultural Research Service (ARS), this assay detects all known *E. coli* O157:H7—even atypical isolates—in raw ground beef, beef trim, spinach and lettuce in less than one hour processing time. Certified by AOAC and AFNOR.



REAL-TIME PCR STEC SUITE

PN D14642964 – 96 tests

PN D14642970 – 48 tests

PN D14642987 – 48 tests

Developed in collaboration with the USDA ARS, this suite of assays aligns well with the USDA Food Safety and Inspection Service (FSIS) guidelines for STEC testing. The screening assay, which amplifies and detects virulence genes—*stx* and *eae*—in less than an hour, quickly clears negative samples of enriched ground beef, beef trim and produce. Using the same lysate, panel assays determine if positive screening samples contain any of the top six non-O157 serogroups, and identify each. Because cycling conditions are identical, the STEC suite and the real-time PCR assay for *E. coli* O157:H7 (above) can be run together.



PCR ASSAY FOR E. COLI O157:H7 MP

PN D12404903 – 96 tests

The standard MP assay detects *E. coli* O157:H7 in raw ground beef, beef trim, spinach and lettuce. It has been certified by AOAC and AFNOR validation, and adopted by the USDA FSIS. When used with MP media, you can also detect *Salmonella* from the same enriched sample.

ABOUT DUPONT NUTRITION & HEALTH

DuPont Nutrition & Health is a business dedicated to delivering a wide range of sustainable, bio-based ingredients and advanced molecular diagnostics to provide safer, healthier and more nutritious food. In addition to the leading diagnostic systems formerly available under the Qualicon name, we offer Solae™ soy ingredients to provide a healthier and more sustainable source of proteins, and the DuPont™ Danisco® range of ingredients to help provide enhanced bioprotection, an improved nutritional profile, and better taste and texture.

In the area of food protection, DuPont Nutrition & Health provides advanced molecular diagnostics such as the BAX® and RiboPrinter® Systems for microbial detection, identification and monitoring. These innovative systems enhance food safety and quality assurance programs, providing the superior speed, accuracy, convenience and customer support that food companies have come to expect from DuPont. In addition, we offer food companies a multitude of premier ingredients from the DuPont™ Danisco® range that protect food from organisms such as *Listeria* and Yeast & Mold.

For more information on food safety and quality testing from DuPont, visit FoodDiagnostics.DuPont.com



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