

3M™ Molecular Detection System

3M™ Molecular Detection Assay *E. coli* O157 (including H7)

Testing for *E. coli* O157 (including the H7 serotype) is a critical component of food safety programmes. Foodborne outbreaks of *E. coli* O157:H7 can result in significant adverse health conditions. Foods that have been associated with outbreaks of *E. coli* O157:H7 include raw milk and soft cheeses made from raw milk, unpasteurised fruit juices, raw vegetables, undercooked or raw ground beef.



In order to reduce outbreaks related to *E. coli* O157:H7, a comprehensive farm-to-table approach to food safety is necessary. Farmers, industry, food inspectors, retailers, food service workers and consumers are all critical links in the food safety chain. Faster and more accurate testing methods are needed as traditional microbiology methods are cumbersome and may take more than four days to get results.

Product Description

The 3M™ Molecular Detection Assay *E. coli* O157 is a breakthrough in *E. coli* O157 testing for the food and beverage industry. An innovative solution that is fast, cost effective and easy to use without sacrificing sensitivity or specificity. The 3M™ Molecular Detection Assay *E. coli* O157 is used with the 3M™ Molecular Detection System for the rapid and specific detection of *E. coli* O157 including H7 in enriched food samples.

The 3M™ Molecular Detection Assays use isothermal amplification of nucleic acid sequences with high specificity, efficiency and rapidity. Bioluminescence is used to detect the amplification. Presumptive positive results are reported in real-time while negative results are displayed after the assay is completed.

Our system offers a single enrichment step and minimal sample transfer post-enrichment making your pathogen testing simpler and faster.¹

Step 1—Enrich

Step 2—Lyse

Step 3—Amplify and Detect

Benefits

- Molecular accuracy with excellent specificity and sensitivity to help reduce the number of repeat tests²
- Streamlined workflow to increase lab efficiency and technician productivity
- Real-time results to help you make critical decisions faster

Features

- Detects 1–5 CFU of *E. coli* O157 (including H7) per sample size
- Simultaneous amplification and detection process that is complete in 75 minutes³
- Positive samples identified as early as 15 minutes⁴
- Flexibility to test 1 to 94 samples in each run (allowing a positive/negative control)
- Incorporate other assays in the same run using the same protocol
- Only two transfer steps after a single enrichment
- Ready-to-use and pre-dispensed reagents
- Unique colour coded assay tubes by organism type
- Closed-tube system to reduce risk of amplicon contamination in the lab



Kit Details

Tests Per Kit: 96

Contents:

- Colour-Coded Reagent Tubes
- Pre-Dispensed and Ready-To-Use Lysis Solution
- Caps
- Reagent Control
- Negative Control

Storage Conditions: 2–8°C (shelf-life dated on label)

Certifications and Validations

Studies to meet AOAC PTM/Official Method of Analysis and AFNOR NF ISO 16140 requirements are underway.

Sample Enrichment in 3M™ Buffered Peptone Water ISO

Raw Meat

1. 25g/225mL pre-warmed 3M BPW ISO or 325g/975mL pre-warmed 3M BPW ISO
2. Homogenize thoroughly for two (2) minutes
3. Incubate at 41.5°C (± 1°) for 8–18 hours

Food

1. 25g/225mL pre-warmed 3M BPW ISO
2. Homogenize thoroughly for two (2) minutes
3. Incubate at 41.5°C (± 1°) for 18–24 hours

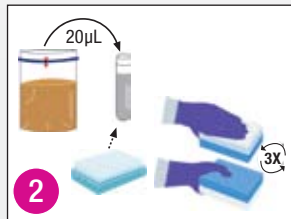
Leafy Produce

1. Add an equal weight of Butterfield's phosphate buffer to at least 200g sample
2. Agitate thoroughly for five (5) minutes
3. Weigh 125g of product rinsate, add to 125mL 2X strength 3M BPW ISO
4. Incubate at 41.5°C (± 1°) for 18–24 hours

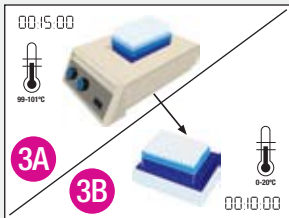
3M™ Molecular Detection Assay Process



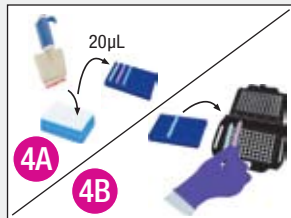
1 Set up run in software.



2 Transfer enriched sample to lysis tubes.



3A Heat lysis tubes, then chill.



4A Transfer lysate to reagent tubes.



5 Place speed loader tray into instrument.



6 Amplification and detection in real time.

3M™ Molecular Detection System Matrix Control

The 3M™ Molecular Detection System uses continuous amplification by a unique, high fidelity DNA polymerase that makes our system less prone to matrix interference.⁵ To assist with your verification process, we offer the 3M™ Molecular Detection Matrix Control to check for sample inhibition. 3M recommends using the Matrix Control during validation periods when adopting the 3M method or testing new or unknown matrices.

Ordering Information

Catalogue Number	Description	Size	Qty.
MDAEC96EM	3M™ Molecular Detection Assay <i>E. coli</i> O157 (including H7)	96 Tests/Kit	1
MDMC96EM	3M™ Molecular Detection Matrix Control	96 Tests/Kit	1
BPW500	Buffered Peptone Water Broth ISO	500g Bottle	1



3M Food Safety

3M Health Care Limited
3M House
Morley Street
Loughborough
Leicestershire LE11 1EP
Tel: 01509 613191
Fax: 01509 613087
Email: ukfoodsafety@mmm.com
Web: www.3M.com/foodsafety

© 3M 2012. All rights reserved.

3M is a trademark of the 3M Company.

70-2009-9504-4-UK1.

References 1,2,3,4,5: Data on file - 3M Health Care Limited 2011.

