3M™ Molecular Detection Assay (MDA) 2 - *E. coli* O157 (including H7) Method - AOAC 2017.01

**SCOPE**

This method is applicable to testing of raw ground beef.

**PRINCIPLES**

The 3M™ Molecular Detection Assay (MDA) 2 – *E. coli* O157 (including H7) method used for the rapid detection of *E. coli* O157:H7 in foods. All samples identified as potentially positive for *E. coli* O157 (including H7) using this method must be confirmed using FSIS MLG 5.

The detection of *E. coli* O157:H7 involves the following steps:

- **Sample enrichment**
  Meat samples (375g) are enriched in 975 mL of pre-warmed (41.5 ±1°C) ISO BPW enrichment broth. The sample is homogenized (use of filter bags is recommended) for two minutes and incubated at 41.5 ± 1°C for 10-18 hours. A positive control culture must be run through all procedures daily or when testing is carried out. The sample and enrichment broth must be at the enrichment temperature for minimum of 10 hours.

- **3M™ system for screening *E. coli* O157**
  *E. coli* O157:H7 is screened in the sample following the manufacturer’s recommended protocol. 3M™ Molecular Detection Assay 2 - *E. coli* O157 (including H7) method uses isothermal amplification of unique DNA target sequences and bioluminescence to detect the amplified sequences. Positive samples will be considered as potential positive.

- **Confirmation**
  In all cases of 3M-positive, 3M-inspect or a 3M-signal-error the enrichment broth must be confirmed for the presence of *E. coli* O157:H7 at a department approved confirmatory laboratory using FSIS MLG 5.
## Checklist

### Enrichment

- Is the ISO BPW enrichment broth warmed to 41.5 ± 1°C before use? _______________________
- Is the correct amount of broth used for the weight of sample analysed i.e. 975 mL? _______________________
- Is a positive control culture run with each batch of samples analysed? _______________________
- Are control cultures inoculated into the enrichment broth at a level of 10 to 100 cells? _______________________
- Is enrichment carried out at 41.5 ± 1°C and is the enrichment broth and sample at 41.5 ± 1°C for a minimum of 10 hours? _______________________

### 3M Screening

- Are the manufacturer’s instructions reproduced in the laboratory manual and followed without modification? _______________________
- Are technicians familiar with and trained in the operation of 3M Molecular Detection System? _______________________
- Is the shelf-life of media, reagents and kits controlled? _______________________
- Are 3M MDA Assay 2 kits stored at 2-8°C? _______________________
- Are open kits used within 60 days? _______________________
- Are open kits kept in resealed pouches with desiccant inside and stored at 2-8°C? _______________________

### Confirmation

- Is E. coli O157 confirmed at a department approved laboratory using FSIS MLG 5? _______________________

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