3M™ Molecular Detection Assay (MDA) 2 - *Salmonella* Method - AOAC 2016.01

**SCOPE**

This method is applicable to:

- Raw ground beef and other selected foods.

**PRINCIPLES**

The 3M™ Molecular Detection Assay (MDA) 2 – *Salmonella* method is used for the rapid detection of *Salmonella* in foods. All samples identified as potentially positive for *Salmonella* using this method must be confirmed using AS 5013.10.

The detection of *Salmonella* spp. is broken down into four stages:

- **Pre-enrichment in non-selective liquid medium**
  
  Meat samples (25 g) are enriched in 225 mL of pre-warmed (41.5 ± 1°C) ISO BPW enrichment broth. Meat samples (325 g) are enriched in 975 mL of ISO BPW. Homogenize thoroughly for two minutes (use of filter bags is recommended). Incubate at 41.5 ± 1°C for 10-24 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 a minimum of 10 hours.

- **3M™ system for screening *Salmonella***
  
  *Salmonella* is screened in the sample following the manufacturer’s recommended protocol. 3M™ Molecular Detection Assay *Salmonella* method uses isothermal amplification of unique DNA target sequences and bioluminescence to detect the amplified sequences.

- **Confirmation**
  
  In all cases of 3M-positive, 3M-inspect or a 3M-signal-error the ISO BPW must be tested using AS 5013.10 (starting at the selective enrichment stage of the analysis). Confirmation must be carried out at a department approved laboratory.
## Checklist

### Pre-enrichment
- Is the ISO BPW enrichment broth warmed to 41.5 ± 1°C before use? ___________________
- Is the correct amount of enrichment broth used for the weight of sample analysed? ___________________
- Is a positive control run with each batch of samples analysed? ___________________
- Are reference cultures inoculated into primary 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? ___________________

### Confirmation
- Are all suspect *Salmonella* isolates sent to a reference laboratory to be serotyped? ___________________
- Is ISO BPW supplied to off-site laboratories for confirmation following AS 5013.10? ___________________
- If *Salmonella* confirmation is done in-house, does confirmation occur using AS 5013.10? ___________________