# BioControl VIP – AOAC 996.09

## SCOPE

This method is suitable for the detection of *E. coli* O157:H7 in dairy products, meat, poultry, seafood and liquid eggs. The 8 h enrichment protocol using BioControl mEHEC (replacing EHEC8) media is suitable for testing raw and cooked beef.

## PRINCIPLES

Specific antibodies for *E. coli* O157:H7 are bound to a chromogenic carrier and separately to a solid support. *E. coli* O157:H7 reacts with antibody-chromogenic complex and flows across a lateral flow membrane where it is bound by antibody immobilised on the membrane. Positive reaction is indicated by a coloured line in the sample test window. A line in the test verification window indicates that the analysis has proceeded correctly.

### Enrichment

Sample is diluted in 9 x its weight of modified trypticase soya broth with added novobiocin (mTSB+N, FDA BAM[[1]](#footnote-1)). Samples are then enriched overnight (18 – 28 h) at 35 – 37°C. The manufacturer recommends adding 2.25 ml of steamed (15 min) TritonX-100 to 225 ml of mTSB+N for viscous samples. For 8 h enrichment of raw and cooked beef samples. Prepare mEHEC media as per the manufacturers instructions, pre-warm to 42°C prior to use. Add the sample and mix, incubate for 8-12 h at 42°C. Both methods been validated for use with 375g samples enriched in one litre of broth.

### Immunoassay

Carry out the VIP assay following the manufacturer’s instructions. The device must be read immediately after 10 min incubation to avoid a false positive reading. Note for the 8h test enrichment broth is boiled prior to inoculation of the VIP device.

### Confirmation

Isolation of *E. coli* O157 is carried out using a DAFF approved confirmatory method. Confirmation must be carried out at a DAFF approved laboratory.

## CHECKLIST

|  |  |  |
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| **Enrichment** | **18 – 28 h Protocol** |  |
|  | Is mTSB+N warmed to 36 ± 1°C (for large quantities) prior to use? |  |
|  | Is novobiocin added on the day of use a rate of 20 mg per litre? |  |
|  | What weight of sample and volume of enrichment broth are used? |  |
|  | Is enrichment carried out at 35 – 37°C for 18-28 h? |  |
|  | **8 h Protocol** |  |
|  | Is mEHEC media used for the initial enrichment? |  |
|  | Is media pre-warmed to 42°C prior to use? |  |
|  | What weight of sample and volume of enrichment broth are used? |  |
|  | Is enrichment carried out at 42°C for 8-12 h? |  |
|  | Is the enrichment broth boiled prior to performing the assay (10 min)? |  |
|  | 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? |  |
| **Immunoassay** | Are the manufacturer’s instructions available and are they reproduced in the laboratory manual? |  |
|  | Are VIP units stored at room temperature in a cool dark place? |  |
|  | Are technicians familiar with positive and negative reactions? |  |
|  | Is incubation carried out at room temperature (10min for 18-28h and 15-20min for 8-12h)? |  |
| **Cultural confirmation** | Is *E. coli* O157:H7 confirmed from mTSB+N at a department approved laboratory? |  |
|  | Is a DAFF approved method used for confirmation? |  |
|  |  |  |

1. 30g trypticase soy broth; 1.5g bile salt No. 3 and 1.5g K2HPO4 (anhydrous) per litre H2O. After autoclaving add 0.2ml of 100mg/ml novobiocin. [↑](#footnote-ref-1)