



## Automated Enumeration of Total Viable Count in Food (TEMPO TVC Method) – AOAC 2008.10

### SCOPE

This method is applicable for enumeration of viable aerobic mesophilic microorganisms in raw ground beef and other foods.

### PRINCIPLES

TEMPO TVC is an automated test for the enumeration of viable microorganisms in food products. The TEMPO TVC test consists of a vial of culture medium and a 'card', which are specific to this test. Viable microorganisms when present reduce the substrate in the culture medium resulting in a fluorescent signal, which is detected by the TEMPO Reader. The TEMPO system estimates the number of viable microorganisms present in the original sample according to a calculation based on the Most Probable Number (MPN) method.

The enumeration process is broken down into stages as follows:

- **Sample preparation**  
Samples are diluted 1:10 in Butterfield's peptone diluent and are homogenized in the TEMPO bag. For carcass swabs samples can be taken directly from the swab without further dilution. TEMPO Automated System is used to reconstitute culture media (using sterile distilled water). Media and sample mixture (0.1 mL filtered sample in 3.9 mL media) are transferred into the TEMPO card (consult the manufacturer's instructions).
- **Incubation**  
TEMPO card with media is incubated at  $35 \pm 1^\circ\text{C}$  for 40 – 48 hours.
- **Interpretation**  
Reading is performed by the TEMPO system by counting the number of positive wells obtained in relation to the volume of the wells and the dilution of the sample. Results are expressed in CFU per g, mL or  $\text{cm}^2$  of original sample, using MPN tables.

**CHECKLIST**

<b>Sample Preparation</b>	Is peptone salt solution or buffered peptone water used for preparation of samples and dilutions?	_____
	Is sterile distilled water used for reconstitution of the TEMPO media?	_____
	Is TEMPO media stored at 2–25°C in a dark place?	
	Is the dilution used capable of detecting viable microorganisms at the level required?	_____
	Is a positive control run with each batch of samples analysed (or daily)?	_____
<b>Incubation</b>	Are TEMPO cards incubated for 40-48 h at 35 ± 1°C?	_____
<b>Interpretation</b>	Are the manufacturer's instructions available and are they reproduced in the laboratory manual?	_____
	Are technicians familiar with the operation of TEMPO Automated System?	_____
	Is the count correctly reported ie CFU/cm <sup>2</sup> for swab and surface samples and CFU/g for meat samples?	_____