

EFFECTIVE DATE	N P Analytical Laboratories	METHOD CODE
REVISED: 03/07/2025	LABORATORY TEST METHOD SUMMARY	CP, EP, EPCS
REPLACES: 03/20/2022	ENUMERATION of COLIFORM BACTERIA and <i>ESCHERICHIA COLI</i>	PAGE 1 OF 1
KEY WORDS: coliforms, <i>E. coli</i> , Petrifilm		

1. **SCOPE AND PURPOSE:**

- 1.1. The *E. coli* / Coliform Count (EC) Petrifilm Plate is a sample-ready-culture medium system which contains modified Violet Red Bile (VRB) nutrients, a cold-water-soluble gelling agent, an indicator of glucuronidase activity, 5-bromo-4-chloro-3-indolyl-D-glucuronide (BCIG), and a tetrazolium indicator that facilitates colony enumeration. This method employs Petrifilm procedures for the quantitation and confirmation of coliforms and *Escherichia coli* in food, feeds, their ingredients, and in environmental samples. This method also details the procedure for *E. coli* testing on sponge samples taken from raw cattle and swine carcasses (NPAL method EPCS) per USDA Guidelines.
- 1.2. This plate is not used for the detection of *E. coli* O157 strains, as they are atypical and will not produce a blue color on the EC plates.

2. **PRINCIPLE:**

- 2.1. Aliquots of a sample are placed in the EC plates. After incubation the plates are counted using a standard colony counter according to the colony descriptions in section 8.5 below and in the EC Product Instructions reference.
- 2.2. Lowest confidence levels:
 - 2.2.1. When 1 milliliter (mL) of a 1:10 dilution is plated the lowest confidence level is 10 Colony Forming Unit (CFU) per milliliter (mL) or CFU/g
 - 2.2.2. The procedure's confidence level can be lowered to 1 CFU/g, or CFU/mL, if 10 mLs of a 1:10 dilution is plated among ten plates.
- 2.3. Possible assay interferences:
 - 2.3.1. High counts of noncoliforms on EC plates may interfere with maximum development of coliforms.
 - 2.3.2. High counts of coliforms or *E. coli* on EC plates may cause one or more characteristics such as small indistinct colonies, many gas bubbles, or a deepening of the gel color. High counts of coliforms on EC will turn the growth area dark red. High counts of *E. coli* on EC will turn the growth area blue.
 - 2.3.3. EC plates cannot be used with buffers containing citrate, bisulfate, or thiosulfate.

3. **PRECISION:**

Assay precision may vary with test matrix and physiological state of the microorganisms in the test samples. Terms used to describe method precision are defined in NPSOP3040, *Verification of Microbiological Tests*.

4. **REFERENCES:**

- 4.1. Petrifilm *E. coli* / Coliform Count (EC) Plate Product Instructions
- 4.2. Petrifilm *E. coli* / Coliform (EC) Count Plate Interpretation Guide
- 4.3. [Guidelines for *Escherichia coli* Testing for Process Control Verification in Cattle and Swine Slaughter Establishments](#). FSIS-GD-1996-0001. June 2005.