



Neogen Petrifilm® Rapid Aerobic Count (RAC) Plate Method for the Enumeration of Aerobic Bacteria on foods - AOAC 2015.13

SCOPE

This method is applicable to testing of raw meat and other foods. Note that Neogen Petrifilm is not supplied by a NATA or ISO 17025 certified media supplier and therefore new batches of media must undergo quality control prior to use. A checklist for Neogen Petrifilm QC is provided for guidance.

PRINCIPLES

The Neogen Petrifilm RAC Plate is a sample-ready culture medium system used to enumerate aerobic bacteria. The medium contains nutrients, a cold-water-soluble gelling agent, and an indicator system that facilitates aerobic bacterial enumeration in as little as 24 hours.

The enumeration is broken down into stages as follows:

▪ Inoculation

Sample is diluted, as specified in the relevant standards or methods, in Butterfield's Phosphate Buffer Diluent¹ (or other approved diluents as recommended by the manufacturer) and 1 mL plated onto the RAC plate. Plates are incubated in stacks of no more than 40 plates. Carcase sponges should be hydrated with 25 mL of diluent and can be enumerated without further dilution. Serial dilution must be prepared using Butterfield's Phosphate Buffer Diluent.

▪ Incubation

Petrifilm plates are incubated at $35 \pm 1^\circ\text{C}$ for 22 - 26 h.

▪ Interpretation

Count all colonies regardless of size, colour, or intensity. Plate counts containing more than 300 CFU are to be estimated by counting the number of colonies in one or more representative squares and calculating the average. The average count is multiplied by 30 to determine the estimated count per plate (in 1 mL or 1 g). When the number of colonies is too numerous to count, repeat the test with higher dilutions.

For swab samples, counts should be expressed as CFU/cm².

For meat and meat products, counts should be expressed as CFU/g.

¹ 0.0425g/L KH₂PO₄ adjusted to pH 7.2

CHECKLIST

Inoculation	Are Neogen Rapid Petrifilm plates warmed to room temperature before use?	_____
	Are the correct diluents used for preparation of samples and dilutions?	_____
Incubation	What is the expiry date of opened packs?	_____
	How is the expiration date of opened packs of Petrifilm controlled?	_____
	How are open packs stored?	_____
	What are the incubation conditions and period?	_____
	How many plates are incubated in a stack?	_____
	What is the maximum number of colonies counted on Neogen RAC plates?	_____
	How are counts outside the countable range reported?	_____
Interpretation	What colonies are identified and counted as aerobic bacteria?	_____
	Is the count reported as CFU/cm ² for swabs and surface samples?	_____

PETRIFILM QC CHECKLIST

	Is media QC carried out on all new batches of Neogen RAC Petrifilm?	_____
	Are new batches clearly identified and held in quarantine until QC results are known?	_____
	Is recovery on new batches of Neogen RAC Petrifilm compared to that on non-selective agar?	_____
	Is an appropriate performance standard used to pass new batches of Petrifilm, i.e. 70%?	_____
