



CERTIFICATION

AOAC Research Institute *Performance Tested Methods*SM

Certificate No.
121403

The AOAC Research Institute hereby certifies the method known as:

Petrifilm® Rapid Aerobic Count (RAC) Plate

manufactured by

Neogen Corporation
620 Leshar Place
Lansing, Michigan 48912
USA

This method has been evaluated and certified according to the policies and procedures of the AOAC *Performance Tested Methods*SM Program. This certificate indicates an AOAC Research Institute Certification Mark License Agreement has been executed which authorizes the manufacturer to display the AOAC Research Institute *Performance Tested Methods*SM certification mark on the above-mentioned method for the period below. Renewal may be granted by the Expiration Date under the rules stated in the licensing agreement.

A handwritten signature in black ink, appearing to read "Bradley A. Stawick".

Bradley A. Stawick, Senior Director
Signature for AOAC Research Institute

Issue Date
Expiration Date

December 06, 2024
December 31, 2026

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MODIFICATION JANUARY 2023: April Schumacher**SUBMITTING COMPANY****3M Company****3M Center, Bldg. 275-5W-05****St. Paul, MN 55144-1000 USA****CURRENT SPONSOR****Neogen Food Safety Corporation****620 Lesher Place****Lansing, MI 48912****METHOD NAME**

Neogen® Petrifilm® Rapid Aerobic Count (RAC) Plate

Formerly 3M™ Petrifilm™ Rapid Aerobic Count (RAC) Plate

CATALOG NUMBERS

6478, 6479

ORIGINAL VALIDATION**INDEPENDENT LABORATORY**

Vanguard Sciences

224 Derby Lane

North Sioux City, SD 57049 USA

MODIFICATION**INDEPENDENT LABORATORY**

Q Laboratories, INC.

1930 Radcliff Drive

Cincinnati, OH 45204 USA

APPLICABILITY OF METHOD**Target organism – Aerobic Count.****Matrixes – (50 g) – Raw ground beef, raw ground turkey, raw ground pork, fresh swai, fresh tuna, fresh tiger shrimp, easy-peel shrimp, frozen blueberries, Mediterranean apricots, creamy salad dressing, pasta****(50 mL) – chicken carcass rinsate, cherry tomato wash****(11 mL) – pasteurized skim milk****(11 g) – vanilla ice cream, dry milk powder****MODIFICATION JANUARY 2022: (100 cm²) - Stainless steel, sealed concrete, and rubber****Performance claims****ORIGINAL –The validation study demonstrated that the Petrifilm RAC method is equivalent to or better than the reference method for the enumeration of Aerobic bacteria.****MODIFICATION JANUARY 2022 – Performance of the Petrifilm Rapid Aerobic Count Plate is equivalent to that of the FDA-BAM Ch 3 for enumeration of aerobic bacteria from stainless steel, sealed concrete, and rubber environmental surfaces.****REFERENCE METHODS****Food and Drug Administration Bacteriological Analytical Manual, Chapter 3, *Aerobic Plate Count* (April 2001)****D. T. Laird , S. A. Gambrel-Lenarz , F. M. Scher , T. E. Graham and R. Reddy L. J. Maturin , Tech. Comm. (2012), “Chapter 6 Microbiological Count Methods”, *Standard Methods for the Examination of Dairy Products*****ORIGINAL CERTIFICATION DATE**

December 29, 2014

CERTIFICATION RENEWAL RECORD

Renewed through December 2026.

METHOD MODIFICATION RECORD

1. January 2019 Level 1
2. January 2022 Level 3
3. December 2022 Level 1
4. January 2023 Level 2
5. January 2024 Level 1

SUMMARY OF MODIFICATION

1. Editorial changes and updated format for insert.
2. Matrix extension for stainless steel, sealed concrete, and rubber environmental surfaces.
3. Editorial changes.
4. Manufacturing site qualification for Wroclaw, Poland.
5. Editorial changes to rebrand method from 3M to Neogen Corporation.

Under this AOAC *Performance Tested Methods*SM License Number, 121403 this method is distributed by:**NONE****Under this AOAC *Performance Tested Methods*SM License Number, 121403 this method is distributed as:****NONE**

PRINCIPLE OF THE METHOD (1)

The Neogen® Petrifilm® Rapid Aerobic Count (RAC) Plate is a sample-ready culture medium system. Petrifilm Rapid Aerobic Count Plates contain nutrients, a coldwater-soluble gelling agent, and a dual-sensing indicator technology that facilitate colony enumeration in 24 hours for most food matrixes. Petrifilm RAC Plates are used for the enumeration of aerobic bacteria in the food and beverage industries.

The Petrifilm RAC Plate has been validated using representative samples of the following matrixes: Raw ground beef, raw ground pork, chicken carcass rinsate, raw turkey sausage, fresh swai, fresh tuna, fresh tiger shrimp, easy-peel shrimp, cherry tomato wash, frozen blueberries, Mediterranean apricots, creamy salad dressing, fresh pasta, vanilla ice cream, dry milk powder, and pasteurized skim milk.

DISCUSSION OF THE VALIDATION STUDY (1)

The Petrifilm Rapid Aerobic Count (RAC) Plate is a sample-ready-culture-medium system which contains Standard Methods nutrients, a coldwater-soluble gelling agent, tetrazolium and a proprietary dual sensing technology that facilitates colony enumeration from a variety of food matrixes in 24 hours. A comparative evaluation of the Petrifilm Rapid Aerobic Count (RAC) Plate (St. Paul MN) was conducted at Q Laboratories, Inc. (Cincinnati, OH). The Petrifilm RAC was compared to the FDA/BAM Chapter 3 for the enumeration of total viable count in raw ground beef, raw ground pork, raw ground turkey, chicken carcass rinsate, fresh swai, fresh tuna, fresh tiger shrimp, easy peel shrimp, cherry tomato wash, frozen blueberries, Mediterranean apricots, creamy salad dressing, and fresh pasta. In addition, the Petrifilm RAC was compared to the Standard Methods for the Examination of Dairy Products Chapter 6 for the enumeration of total aerobic count in vanilla ice cream, dry milk powder, and pasteurized skim milk. Three different levels of microbial contamination (low, medium, high) were enumerated for each matrix, except pasteurized skim milk, which was artificially contaminated and included an Uninoculated level. A total of five replicates per level were analyzed. The difference of means for each level for each matrix was determined. An independent study was conducted at Vanguard Sciences (North Sioux City, SD) which compared Petrifilm RAC to the FDA/BAM Chapter 3 for the enumeration of total viable count as described above. The matrixes tested were raw ground pork, EX peel shrimp, cherry tomatoes, vanilla ice cream, and creamy salad dressing. Petrifilm RAC demonstrated reliability as a rapid and accurate alternative to the references methods for aerobic plate enumeration in the food products evaluated in both studies.

Table 12. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Raw Ground Beef. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ Mean	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ Mean	SD ¹ (S _r)	RSD _r ²	
Low	1	1.0 x 10 ²	2.0000	2.2453	0.1519	6.7652	8.0 x 10 ¹	1.9031	2.3025	0.3119	13.5461	-0.0572
	2	1.8 x 10 ²	2.2553				4.5 x 10 ²	2.6532				
	3	2.0 x 10 ²	2.3010				1.7 x 10 ²	2.2304				
	4	2.6 x 10 ²	2.4150				3.8 x 10 ²	2.5798				
	5	1.8 x 10 ²	2.2553				1.4 x 10 ²	2.1461				
Medium	1	9.5 x 10 ³	3.9777	3.8474	0.1507	3.9169	8.1 x 10 ³	3.9085	3.8930	0.0931	2.3915	-0.0456
	2	7.8 x 10 ³	3.8921				6.0 x 10 ³	3.7782				
	3	9.4 x 10 ³	3.9731				9.1 x 10 ³	3.9590				
	4	4.2 x 10 ³	3.6232				1.0 x 10 ⁴	4.0000				
	5	5.9 x 10 ³	3.7709				6.6 x 10 ³	3.8195				
High	1	7.6 x 10 ⁵	5.8808	5.9829	0.0783	1.3087	7.8 x 10 ⁵	5.8921	6.0503	0.1176	1.9437	-0.0674
	2	1.1 x 10 ⁶	6.0414				1.0 x 10 ⁶	6.0000				
	3	9.0 x 10 ⁵	5.9542				1.3 x 10 ⁶	6.1139				
	4	1.2 x 10 ⁶	6.0792				1.6 x 10 ⁶	6.2041				
	5	9.1 x 10 ⁵	5.9590				1.1 x 10 ⁶	6.0414				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 13. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Raw Ground Pork. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.3 x 10 ⁴	4.1139	4.0409	0.0852	2.1084	2.0 x 10 ⁴	4.3010	4.3287	0.1763	4.0728	-0.2878
	2	1.0 x 10 ⁴	4.0000				1.1 x 10 ⁴	4.0414				
	3	8.8 x 10 ³	3.9445				2.3 x 10 ⁴	4.3617				
	4	1.0 x 10 ⁴	4.0000				3.0 x 10 ⁴	4.4771				
	5	1.4 x 10 ⁴	4.1461				2.9 x 10 ⁴	4.4624				
Medium	1	5.1 x 10 ⁵	5.7076	5.7124	0.0172	0.3011	3.2 x 10 ⁵	5.5051	5.4990	0.0810	1.4730	0.2134
	2	5.2 x 10 ⁵	5.7160				2.5 x 10 ⁵	5.3979				
	3	5.0 x 10 ⁵	5.6990				3.0 x 10 ⁵	5.4771				
	4	5.5 x 10 ⁵	5.7404				4.2 x 10 ⁵	5.6232				
	5	5.0 x 10 ⁵	5.6990				3.1 x 10 ⁵	5.4914				
High	1	3.3 x 10 ⁶	6.5185	6.5994	0.1460	2.2123	3.6 x 10 ⁶	6.5563	6.6007	0.0911	1.3802	-0.0012
	2	3.2 x 10 ⁶	6.5051				3.6 x 10 ⁶	6.5563				
	3	3.2 x 10 ⁶	6.5051				3.2 x 10 ⁶	6.5051				
	4	4.2 x 10 ⁶	6.6232				4.5 x 10 ⁶	6.6532				
	5	7.0 x 10 ⁶	6.8451*				5.4 x 10 ⁶	6.7324				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)**Table 14. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Raw Ground Turkey. (1)**

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	2.0 x 10 ¹	1.3010	1.2760	0.1721	13.4875	6.0 x 10 ¹	1.7782	1.7143	0.1791	10.4474	-0.2946
	2	1.0 x 10 ¹	1.0000				8.0 x 10 ¹	1.9031				
	3	3.0 x 10 ¹	1.4771				5.0 x 10 ¹	1.6990				
	4	2.0 x 10 ¹	1.3010				3.0 x 10 ¹	1.4771				
	5	2.0 x 10 ¹	1.3010				<1.0 x 10 ¹	<1.0000				
Medium	1	2.6 x 10 ²	2.4150	2.0369	0.2773	13.6138	6.0 x 10 ²	2.7782	2.7747	0.0462	1.6650	-0.7374
	2	1.2 x 10 ²	2.0792				5.9 x 10 ²	2.7709				
	3	1.4 x 10 ²	2.1461				7.0 x 10 ²	2.8451				
	4	7.0 x 10 ¹	1.8451				5.2 x 10 ²	2.7160				
	5	5.0 x 10 ¹	1.6990				5.8 x 10 ²	2.7634				
High	1	4.2 x 10 ⁶	6.6232	6.6852	0.0584	0.8736	4.3 x 10 ⁶	6.6335	6.7023	0.0458	0.6833	-0.0170
	2	4.5 x 10 ⁶	6.6532				4.8 x 10 ⁶	6.6812				
	3	5.2 x 10 ⁶	6.7160				5.4 x 10 ⁶	6.7324				
	4	5.9 x 10 ⁶	6.7709				5.2 x 10 ⁶	6.7160				
	5	4.6 x 10 ⁶	6.6628				5.6 x 10 ⁶	6.7482				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 15. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Chicken Carcass Rinsate. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/mL	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/mL	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.6 x 10 ⁴	4.2041	4.3192	0.0878	2.0328	3.4 x 10 ⁴	4.5315	4.4571	0.0489	1.0971	-0.1380
	2	2.0 x 10 ⁴	4.3010				3.0 x 10 ⁴	4.4771				
	3	2.0 x 10 ⁴	4.3010				2.6 x 10 ⁴	4.4150				
	4	2.8 x 10 ⁴	4.4472				2.8 x 10 ⁴	4.4472				
	5	2.2 x 10 ⁴	4.3424				2.6 x 10 ⁴	4.4150				
Medium	1	4.2 x 10 ⁵	5.6232	5.5935	0.0474	0.8474	4.3 x 10 ⁵	5.6335	5.6137	0.0599	1.0670	-0.0202
	2	4.4 x 10 ⁵	5.6435				4.2 x 10 ⁵	5.6232				
	3	3.6 x 10 ⁵	5.5563				3.6 x 10 ⁵	5.5563				
	4	3.4 x 10 ⁵	5.5315				3.6 x 10 ⁵	5.5563				
	5	4.1 x 10 ⁵	5.6128				5.0 x 10 ⁵	5.6990				
High	1	1.7 x 10 ⁶	6.2304	6.2140	0.0300	0.4828	1.7 x 10 ⁶	6.2304	6.2545	0.0288	0.4605	-0.0405
	2	1.5 x 10 ⁶	6.1761				1.7 x 10 ⁶	6.2304				
	3	1.8 x 10 ⁶	6.2553				1.8 x 10 ⁶	6.2553				
	4	1.6 x 10 ⁶	6.2041				2.0 x 10 ⁶	6.3010				
	5	1.6 x 10 ⁶	6.2041				1.8 x 10 ⁶	6.2553				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)**Table 16. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Fresh Swai. (1)**

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.3 x 10 ³	3.1139	3.1134	0.0237	0.7612	1.3 x 10 ³	3.1139	3.1719	0.0666	2.0997	-0.0585
	2	1.4 x 10 ³	3.1461				1.8 x 10 ³	3.2553				
	3	1.3 x 10 ³	3.1139				1.3 x 10 ³	3.1139				
	4	1.3 x 10 ³	3.1139				1.4 x 10 ³	3.1461				
	5	1.2 x 10 ³	3.0792				1.7 x 10 ³	3.2304				
Medium	1	1.4 x 10 ⁴	4.1461	4.0643	0.2003	4.9283	2.9 x 10 ⁴	4.4624	4.3402	0.1429	3.2925	-0.2760
	2	1.8 x 10 ⁴	4.2553				1.7 x 10 ⁴	4.2304				
	3	1.4 x 10 ⁴	4.1461				2.6 x 10 ⁴	4.4150				
	4	1.1 x 10 ⁴	4.0414				2.8 x 10 ⁴	4.4472				
	5	5.4 x 10 ³	3.7324				1.4 x 10 ⁴	4.1461				
High	1	4.0 x 10 ⁷	7.6021	7.6682	0.0472	0.6155	4.0 x 10 ⁷	7.6021	7.6602	0.0531	0.6932	0.0080
	2	4.7 x 10 ⁷	7.6721				5.0 x 10 ⁷	7.6990				
	3	4.8 x 10 ⁷	7.6812				5.0 x 10 ⁷	7.6990				
	4	4.5 x 10 ⁷	7.6532				5.0 x 10 ⁷	7.6990				
	5	5.4 x 10 ⁷	7.7324				4.0 x 10 ⁷	7.6021				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 17. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Fresh Tuna. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	8.0 x 10 ¹	1.9031	1.8179	0.3288	18.0868	2.0 x 10 ²	2.3010	2.4586	0.4561	18.5512	-0.6401
	2	8.0 x 10 ¹	1.9031				5.8 x 10 ²	2.7634				
	3	1.6 x 10 ²	2.2041				3.1 x 10 ²	2.4914				
	4	6.0 x 10 ¹	1.7782				9.1 x 10 ²	2.9590				
	5	2.0 x 10 ¹	1.3010				6.0 x 10 ¹	1.7782				
Medium	1	1.4 x 10 ⁵	5.1461*	4.4030	0.4430	10.0613	3.8 x 10 ⁴	4.5798	4.8481	0.2024	4.1748	-0.4451
	2	1.0 x 10 ⁴	4.0000				1.2 x 10 ⁵	5.0792				
	3	2.4 x 10 ⁴	4.3802				7.2 x 10 ⁴	4.8573				
	4	2.2 x 10 ⁴	4.3424				5.3 x 10 ⁴	4.7243				
	5	1.4 x 10 ⁴	4.1461				1.0 x 10 ⁵	5.0000				
High	1	2.9 x 10 ⁵	5.4624	5.2523	0.1873	3.5661	3.4 x 10 ⁴	4.5315	4.6253	0.1311	2.8344	0.6271
	2	1.4 x 10 ⁵	5.1461				5.6 x 10 ⁴	4.7482				
	3	1.8 x 10 ⁵	5.2553				6.1 x 10 ⁴	4.7853				
	4	1.0 x 10 ⁵	5.0000				3.2 x 10 ⁴	4.5051				
	5	2.5 x 10 ⁵	5.3979				3.6 x 10 ⁴	4.5563				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

*Grubb's test outlier

Table 18. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Fresh Tiger Shrimp. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	3.6 x 10 ⁵	5.5563	5.7699	0.3223	5.5859	8.6 x 10 ⁴	4.9345	4.9729	0.0467	0.9391	0.7970
	2	2.0 x 10 ⁶	6.3010				1.1 x 10 ⁵	5.0414				
	3	6.6 x 10 ⁵	5.8195				1.0 x 10 ⁵	5.0000				
	4	4.8 x 10 ⁵	5.6812				8.6 x 10 ⁴	4.9345				
	5	3.1 x 10 ⁵	5.4914				9.0 x 10 ⁴	4.9542				
Medium	1	1.1 x 10 ⁶	6.0414	6.1705	0.0800	1.2965	1.2 x 10 ⁵	5.0792	5.2248	0.2326	4.4518	0.9457
	2	1.4 x 10 ⁶	6.1461				4.2 x 10 ⁵	5.6232*				
	3	1.6 x 10 ⁶	6.2041				1.1 x 10 ⁵	5.0414				
	4	1.7 x 10 ⁶	6.2304				1.5 x 10 ⁵	5.1761				
	5	1.7 x 10 ⁶	6.2304				1.6 x 10 ⁵	5.2041				
High	1	1.2 x 10 ⁷	7.0792	7.1559	0.0959	1.3402	1.0 x 10 ⁶	6.0000	6.1503	0.1226	1.9934	1.0056
	2	1.1 x 10 ⁷	7.0414				1.2 x 10 ⁶	6.0792				
	3	1.5 x 10 ⁷	7.1761				2.1 x 10 ⁶	6.3222				
	4	1.6 x 10 ⁷	7.2041				1.4 x 10 ⁶	6.1461				
	5	1.9 x 10 ⁷	7.2788				1.6 x 10 ⁶	6.2041				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 19. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Easy Peel Shrimp (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.4 x 10 ²	2.1461	2.4060	0.1630	6.7747	1.3 x 10 ²	2.1139*	2.3645	0.1407	5.9505	0.0415
	2	2.3 x 10 ²	2.3617				2.7 x 10 ²	2.4314				
	3	3.1 x 10 ²	2.4914				2.6 x 10 ²	2.4150				
	4	2.9 x 10 ²	2.4624				2.6 x 10 ²	2.4150				
	5	3.7 x 10 ²	2.5682				2.8 x 10 ²	2.4472				
Medium	1	8.0 x 10 ²	2.9031	3.0883	0.4497	14.5614	9.5 x 10 ²	2.9777	2.9347	0.0805	2.7430	0.1536
	2	8.0 x 10 ²	2.9031				1.0 x 10 ³	3.0000				
	3	6.0 x 10 ³	3.7782				6.8 x 10 ²	2.8325				
	4	1.8 x 10 ³	3.2553				1.0 x 10 ³	3.0000				
	5	4.0 x 10 ²	2.6021				7.3 x 10 ²	2.8633				
High	1	1.4 x 10 ⁵	5.1461	5.1253	0.0439	0.8565	1.1 x 10 ⁵	5.0414	5.0490	0.0169	0.3347	0.0764
	2	1.4 x 10 ⁵	5.1461				1.1 x 10 ⁵	5.0414				
	3	1.2 x 10 ⁵	5.0792				1.2 x 10 ⁵	5.0792*				
	4	1.2 x 10 ⁵	5.0792				1.1 x 10 ⁵	5.0414				
	5	1.5 x 10 ⁵	5.1761				1.1 x 10 ⁵	5.0414				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)**Table 20. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Cherry Tomato Wash. (1)**

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/mL	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.1 x 10 ³	3.0414	3.0125	0.0461	1.5303	1.7 x 10 ³	3.2304	3.2398	0.0283	0.8735	-0.2273
	2	1.2 x 10 ³	3.0792				1.6 x 10 ³	3.2041				
	3	9.4 x 10 ²	2.9731				1.8 x 10 ³	3.2553				
	4	9.8 x 10 ²	2.9912				1.9 x 10 ³	3.2788				
	5	9.5 x 10 ²	2.9777				1.7 x 10 ³	3.2304				
Medium	1	3.3 x 10 ⁴	4.5185	4.5606	0.0550	1.2060	3.0 x 10 ⁴	4.4771	4.5493	0.0482	1.0595	0.0113
	2	3.2 x 10 ⁴	4.5051				3.8 x 10 ⁴	4.5798				
	3	3.8 x 10 ⁴	4.5798				4.0 x 10 ⁴	4.6021				
	4	3.6 x 10 ⁴	4.5563				3.6 x 10 ⁴	4.5563				
	5	4.4 x 10 ⁴	4.6435				3.4 x 10 ⁴	4.5315				
High	1	4.0 x 10 ⁵	5.6021	5.5613	0.0486	0.8739	3.0 x 10 ⁵	5.4771	5.5496	0.0451	0.8127	0.0117
	2	3.4 x 10 ⁵	5.5315				3.6 x 10 ⁵	5.5563				
	3	3.1 x 10 ⁵	5.4914				3.6 x 10 ⁵	5.5563				
	4	4.0 x 10 ⁵	5.6021				3.6 x 10 ⁵	5.5563				
	5	3.8 x 10 ⁵	5.5798				4.0 x 10 ⁵	5.6021				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 21. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Frozen Blueberries. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	4.0 x 10 ¹	1.6021	1.6475	0.1297	7.8725	2.0 x 10 ¹	1.3010	1.5521	0.2402	15.4758	0.0951
	2	4.0 x 10 ¹	1.6021				4.0 x 10 ¹	1.6021				
	3	6.0 x 10 ¹	1.7782				6.0 x 10 ¹	1.7782				
	4	3.0 x 10 ¹	1.4771				2.0 x 10 ¹	1.3010				
	5	6.0 x 10 ¹	1.7782				6.0 x 10 ¹	1.7782				
Medium	1	9.3 x 10 ³	3.9685	3.9573	0.0531	1.3418	8.0 x 10 ³	3.9031	3.9806	0.1266	3.1804	-0.0233
	2	8.4 x 10 ³	3.9243				8.5 x 10 ³	3.9294				
	3	8.0 x 10 ³	3.9031				1.4 x 10 ⁴	4.1461				
	4	1.1 x 10 ⁴	4.0414				1.2 x 10 ⁴	4.0792				
	5	8.9 x 10 ³	3.9494				7.0 x 10 ³	3.8451				
High	1	4.8 x 10 ⁴	4.6812	4.6333	0.0833	1.7979	3.8 x 10 ⁴	4.5798	4.6131	0.0650	1.4090	0.0202
	2	3.4 x 10 ⁴	4.5315				3.4 x 10 ⁴	4.5315				
	3	5.2 x 10 ⁴	4.7160				4.5 x 10 ⁴	4.6532				
	4	3.6 x 10 ⁴	4.5563				4.0 x 10 ⁴	4.6021				
	5	4.8 x 10 ⁴	4.6812				5.0 x 10 ⁴	4.6990				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)**Table 22. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Mediterranean Apricots. (1)**

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	3.5 x 10 ³	3.5441	3.5373	0.0431	1.2184	3.4 x 10 ³	3.5315	3.5236	0.0118	0.3349	0.0137
	2	3.1 x 10 ³	3.4914				3.3 x 10 ³	3.5185				
	3	4.0 x 10 ³	3.6021				3.2 x 10 ³	3.5051				
	4	3.5 x 10 ³	3.5441				3.4 x 10 ³	3.5315				
	5	3.2 x 10 ³	3.5051				3.4 x 10 ³	3.5315				
Medium	1	5.9 x 10 ⁴	4.7709	4.7248	0.0555	1.1746	4.8 x 10 ⁴	4.6812	4.7433	0.0442	0.9318	-0.0185
	2	4.4 x 10 ⁴	4.6435				6.2 x 10 ⁴	4.7924				
	3	5.0 x 10 ⁴	4.6990				5.8 x 10 ⁴	4.7634				
	4	5.4 x 10 ⁴	4.7324				5.8 x 10 ⁴	4.7634				
	5	6.0 x 10 ⁴	4.7782				5.2 x 10 ⁴	4.7160				
High	1	1.4 x 10 ⁶	6.1461	6.1263	0.0298	0.4864	1.3 x 10 ⁶	6.1139	6.1059	0.0386	0.6322	0.0204
	2	1.2 x 10 ⁶	6.0792				1.1 x 10 ⁶	6.0414				
	3	1.3 x 10 ⁶	6.1139				1.3 x 10 ⁶	6.1139				
	4	1.4 x 10 ⁶	6.1461				1.4 x 10 ⁶	6.1461				
	5	1.4 x 10 ⁶	6.1461				1.3 x 10 ⁶	6.1139				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 23. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Creamy Salad Dressing. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	6.0 x 10 ¹	1.7782	1.7327	0.1297	7.4854	4.0 x 10 ¹	1.6021*	1.3612	0.1346	9.8883	0.3703
	2	6.0 x 10 ¹	1.7782				2.0 x 10 ¹	1.3010				
	3	8.0 x 10 ¹	1.9031				2.0 x 10 ¹	1.3010				
	4	4.0 x 10 ¹	1.6021				2.0 x 10 ¹	1.3010				
	5	4.0 x 10 ¹	1.6021				2.0 x 10 ¹	1.3010				
Medium	1	2.0 x 10 ²	2.3010	2.3290	0.0397	1.7046	1.9 x 10 ²	2.2788	2.2371	0.0623	2.7849	0.0919
	2	2.4 x 10 ²	2.3802				1.8 x 10 ²	2.2553				
	3	2.2 x 10 ²	2.3424				2.0 x 10 ²	2.3010				
	4	1.9 x 10 ²	2.2788				1.6 x 10 ²	2.2041				
	5	2.2 x 10 ²	2.3424				1.4 x 10 ²	2.1461				
High	1	9.8 x 10 ⁴	4.9912	4.9774	0.0588	1.1813	1.1 x 10 ⁵	5.0414	4.9621	0.0708	1.4268	0.0152
	2	7.6 x 10 ⁴	4.8808				7.1 x 10 ⁴	4.8513				
	3	1.1 x 10 ⁵	5.0414				1.0 x 10 ⁵	5.0000				
	4	9.8 x 10 ⁴	4.9912				9.2 x 10 ⁴	4.9638				
	5	9.6 x 10 ⁴	4.9823				9.0 x 10 ⁴	4.9542				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)**Table 24. Method Comparison Results: Petrifilm RAC and the FDA/BAM Reference Method for Fresh Pasta. (1)**

Contamination Level	Sample Replicate	Petrifilm RAC Method					FDA/BAM APC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	2.8 x 10 ⁵	5.4472	5.4057	0.0523	0.9675	1.9 x 10 ⁵	5.2788*	5.3971	0.0703	1.3026	0.0087
	2	2.9 x 10 ⁵	5.4624				2.6 x 10 ⁵	5.4150				
	3	2.3 x 10 ⁵	5.3617				2.7 x 10 ⁵	5.4314				
	4	2.2 x 10 ⁵	5.3424				2.9 x 10 ⁵	5.4624				
	5	2.6 x 10 ⁵	5.4150				2.5 x 10 ⁵	5.3979				
Medium	1	2.5 x 10 ⁶	6.3979	6.4209	0.0270	0.4205	2.6 x 10 ⁶	6.4150	6.4235	0.0388	0.6040	-0.0026
	2	2.9 x 10 ⁶	6.4624				2.8 x 10 ⁶	6.4472				
	3	2.5 x 10 ⁶	6.3979				2.3 x 10 ⁶	6.3617				
	4	2.6 x 10 ⁶	6.4150				2.7 x 10 ⁶	6.4314				
	5	2.7 x 10 ⁶	6.4314				2.9 x 10 ⁶	6.4624				
High	1	1.3 x 10 ⁸	8.1139	8.1741	0.0460	0.5628	1.1 x 10 ⁸	8.0414	8.1499	0.0953	1.1693	0.0242
	2	1.5 x 10 ⁸	8.1761				1.4 x 10 ⁸	8.1461				
	3	1.7 x 10 ⁸	8.2304				1.9 x 10 ⁸	8.2788				
	4	1.6 x 10 ⁸	8.2041				1.2 x 10 ⁸	8.0792				
	5	1.4 x 10 ⁸	8.1461				1.6 x 10 ⁸	8.2041				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 25. Method Comparison Results: Petrifilm RAC and the Standard Methods for the Examination of Dairy Products Reference Method for Vanilla Ice Cream. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					SMEDP SPC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	1.0 x 10 ²	2.0000	1.9053	0.0971	5.0963	2.0 x 10 ¹	1.3010	1.4919	0.2044	13.7006	0.4124
	2	7.0 x 10 ¹	1.8451				4.0 x 10 ¹	1.6021				
	3	1.0 x 10 ²	2.0000				3.0 x 10 ¹	1.4771				
	4	8.0 x 10 ¹	1.9031				6.0 x 10 ¹	1.7782				
	5	6.0 x 10 ¹	1.7782				2.0 x 10 ¹	1.3010				
Medium	1	1.1 x 10 ⁴	4.0414	3.9883	0.0345	0.8650	9.4 x 10 ³	3.9731	4.0076	0.0323	0.8060	-0.0193
	2	1.0 x 10 ⁴	4.0000				1.0 x 10 ⁴	4.0000				
	3	9.0 x 10 ³	3.9542				1.1 x 10 ⁴	4.0414				
	4	9.6 x 10 ³	3.9823				9.6 x 10 ³	3.9823				
	5	9.2 x 10 ³	3.9638				1.1 x 10 ⁴	4.0414				
High	1	1.3 x 10 ⁵	5.1139	5.1303	0.0580	1.1305	1.5 x 10 ⁵	5.1761	5.1616	0.0552	1.0694	-0.0313
	2	1.2 x 10 ⁵	5.0792				1.2 x 10 ⁵	5.0792				
	3	1.3 x 10 ⁵	5.1139				1.5 x 10 ⁵	5.1761				
	4	1.7 x 10 ⁵	5.2304*				1.7 x 10 ⁵	5.2304				
	5	1.3 x 10 ⁵	5.1139				1.4 x 10 ⁵	5.1461				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

*Grubbs' test outlier.

Table 26. Method Comparison Results: Petrifilm RAC and the Standard Methods for the Examination of Dairy Products Reference Method Dry Milk Powder. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					SMEDP SPC					Mean Log ₁₀ Difference ³
		CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Low	1	3.8 x 10 ²	2.5798	2.6204	0.0300	1.1449	3.4 x 10 ²	2.5315	2.5337	0.0549	2.1668	0.0866
	2	4.4 x 10 ²	2.6435				4.2 x 10 ²	2.6232				
	3	4.2 x 10 ²	2.6232				3.4 x 10 ²	2.5315				
	4	4.5 x 10 ²	2.6532				3.0 x 10 ²	2.4771				
	5	4.0 x 10 ²	2.6021				3.2 x 10 ²	2.5051				
Medium	1	4.0 x 10 ⁵	5.6021	5.6111	0.0636	1.1335	3.5 x 10 ⁵	5.5441	5.5710	0.0442	0.7934	0.0401
	2	4.4 x 10 ⁵	5.6435				3.4 x 10 ⁵	5.5315				
	3	5.0 x 10 ⁵	5.6990				3.6 x 10 ⁵	5.5563				
	4	3.8 x 10 ⁵	5.5798				3.8 x 10 ⁵	5.5798				
	5	3.4 x 10 ⁵	5.5315				4.4 x 10 ⁵	5.6435				
High	1	6.4 x 10 ⁶	6.8062	6.7440	0.0683	1.0128	3.5 x 10 ⁶	6.5441	6.6617	0.0739	1.1093	0.0823
	2	6.4 x 10 ⁶	6.8062				5.4 x 10 ⁶	6.7324				
	3	5.6 x 10 ⁶	6.7482				4.5 x 10 ⁶	6.6532				
	4	5.2 x 10 ⁶	6.7160				4.6 x 10 ⁶	6.6628				
	5	4.4 x 10 ⁶	6.6435				5.2 x 10 ⁶	6.7160				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 27. Method Comparison Results: Petrifilm RAC and the Standard Methods for the Examination of Dairy Products Reference Method Pasteurized Skim Milk. (1)

Contamination Level	Sample Replicate	Petrifilm RAC Method					SMEDP SPC					Mean Log ₁₀ Difference ³
		CFU/mL	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	CFU/g	Log ₁₀	Log ₁₀ MEAN	SD ¹ (S _r)	RSD _r ²	
Uninoculated	1	<10	<1.0000				<10	<1.0000				NA
	2	<10	<1.0000				<10	<1.0000				
	3	<10	<1.0000				<10	<1.0000				
	4	<10	<1.0000				<10	<1.0000				
	5	<10	<1.0000				<10	<1.0000				
Low 1.10 x 10 ³	1	1.6 x 10 ³	3.2041	3.1689	0.0390	1.2307	1.4 x 10 ³	3.1461	3.1263	0.0298	0.9532	0.0426
	2	1.5 x 10 ³	3.1761				1.3 x 10 ³	3.1139				
	3	1.3 x 10 ³	3.1139				1.4 x 10 ³	3.1461				
	4	1.6 x 10 ³	3.2041				1.2 x 10 ³	3.0792				
	5	1.4 x 10 ³	3.1461				1.4 x 10 ³	3.1461				
Medium 1.10 x 10 ⁴	1	4.9 x 10 ⁴	4.6902	4.7269	0.0267	0.5649	5.7 x 10 ⁴	4.7559	4.6957	0.0606	1.2905	0.0312
	2	5.8 x 10 ⁴	4.7634				5.4 x 10 ⁴	4.7324				
	3	5.4 x 10 ⁴	4.7324				5.2 x 10 ⁴	4.7160				
	4	5.2 x 10 ⁴	4.7160				4.7 x 10 ⁴	4.6721				
	5	5.4 x 10 ⁴	4.7324				4.0 x 10 ⁴	4.6021				
High 1.10 x 10 ⁶	1	1.1 x 10 ⁶	6.0414	6.0010	0.0275	0.4583	9.8 x 10 ⁵	5.9912	5.9570	0.0472	0.7923	0.0440
	2	1.0 x 10 ⁶	6.0000				9.2 x 10 ⁵	5.9638				
	3	1.0 x 10 ⁶	6.0000				1.0 x 10 ⁶	6.0000				
	4	1.0 x 10 ⁶	6.0000				8.9 x 10 ⁵	5.9494				
	5	9.2 x 10 ⁵	5.9638				7.6 x 10 ⁵	5.8808				

¹SD = Standard deviation²RSD_r = Relative Standard deviation = $\frac{SD}{MEAN} \times 100$ ³Mean Difference = Candidate Log Mean – Reference Log Mean (A mean difference absolute value of greater than 0.5 indicates a statistical significant difference between methods)

Table 32. Independent Laboratory Method Comparison Results: EZ Peel Shrimp. (1)

Level	Replicate	Petrifilm RAC Method - 22 Hours		Reference Method	
		CFU/g	Log CFU/g	CFU/g	Log CFU/g
Low	1	170	2.23	230	2.36
	2	530	2.72	380	2.58
	3	400	2.60	280	2.45
	4	290	2.46	350	2.54
	5	240	2.38	380	2.58
	Mean	326	2.48	324	2.50
	Sr		0.10		0.19
	RSDr, %		4.03		7.59
	p-value		0.77		
Medium	1	6900	3.84	820	2.91
	2	3800	2.58	1100	3.04
	3	5400	3.72	1700	3.23
	4	3200	3.51	1200	3.08
	5	4400	3.64	1600	3.20
	Mean	4740	3.66	1284	3.09
	Sr		0.13		0.13
	RSDr, %		3.55		4.20
	p-value		0.00		
High	1	580000	5.76	210000	5.32
	2	56000	4.75	25000	4.40
	3	45000	4.65	25000	4.40
	4	61000	4.79	27000	4.43
	5	56000	4.75	30000	4.48
	Mean	159600	4.94	63400	4.61
	Sr		0.46		0.40
	RSDr, %		9.31		8.69
	p-value		0.00		

Table 33. Independent Laboratory Method Comparison Results: Cherry Tomato Wash. (1)

		Petrifilm RAC Method - 22 Hours		Reference Method	
Level	Replicate	CFU/g	Log CFU/g	CFU/g	Log CFU/g
Low	1	600	2.78	900	2.95
	2	1300	3.11	400	2.60
	3	1200	3.08	800	2.90
	4	1200	3.08	200	2.30
	5	1300	3.11	200	2.30
	Mean	1120	3.03	500	2.61
	Sr		0.31		0.14
	RSDr, %		10.22		5.36
	p-value		0.09		
Medium	1	26000	4.41	31000	4.49
	2	1400	3.15	4500	3.65
	3	1900	3.28	2400	3.38
	4	3400	3.53	13000	4.11
	5	5600	3.75	5000	3.70
	Mean	7660	3.62	11180	3.87
	Sr		0.44		0.50
	RSDr, %		12.14		12.93
	p-value		0.13		
High	1	550000	5.74	470000	5.67
	2	110000	5.04	120000	5.08
	3	14000	4.15	13000	4.11
	4	45000	4.65	48000	4.68
	5	110000	5.04	160000	5.20
	Mean	165800	4.92	162200	4.95
	Sr		0.59		0.59
	RSDr, %		11.98		11.92
	p-value		0.55		

Table 34. Independent Laboratory Method Comparison Results: Creamy Dressing. (1)

Level	Replicate	Petrifilm RAC Method - 22 Hours		Reference Method	
		CFU/g	Log CFU/g	CFU/g	Log CFU/g
Low	1	80	1.90	20	1.30
	2	30	1.48	30	1.48
	3	30	1.48	30	1.48
	4	60	1.78	30	1.48
	5	60	1.78	<10	<1.00
	Mean	52	1.68	28	1.43
	Sr		0.09		0.22
	RSDr, %		5.35		15.35
	p-value		0.22		
Medium	1	70	1.85	180	2.26
	2	80	1.90	430	2.63
	3	460	2.66	750	2.88
	4	970	2.99	1100	3.04
	5	410	2.61	580	2.76
	Mean	3.98	2.40	608	2.71
	Sr		0.30		0.50
	RSDr, %		12.49		18.42
	p-value		0.06		
High	1	1100	3.04	700	2.85
	2	1400	3.15	1100	3.04
	3	800	2.90	800	2.90
	4	1000	3.00	700	2.85
	5	1000	3.00	1000	3.00
	Mean	1060	3.02	860	2.93
	Sr		0.09		0.09
	RSDr, %		2.98		3.07
	p-value		0.08		

Table 35. Independent Laboratory Method Comparison Results: Vanilla Ice Cream. (1)

Level	Replicate	Petrifilm RAC Method - 22 Hours		Reference Method	
		CFU/g	Log CFU/g	CFU/g	Log CFU/g
Low	1	20	1.30	30	1.48
	2	10	1.00	10	1.00
	3	10	1.00	20	1.30
	4	20	1.30	20	1.30
	5	30	1.48	50	1.70
	Mean	18	1.22	26	1.36
	Sr		0.26		0.21
	RSDr, %		21.38		15.49
	p-value		0.08		
Medium	1	8400	3.92	8400	3.92
	2	7400	3.87	9000	3.95
	3	6500	3.81	7600	3.88
	4	8500	3.93	7300	3.86
	5	8200	3.91	7100	3.85
	Mean	7800	3.89	7880	3.89
	Sr		0.04		0.05
	RSDr, %		1.03		1.28
	p-value		0.89		
High	1	500000	5.70	400000	5.60
	2	460000	5.66	530000	5.72
	3	460000	5.66	580000	5.76
	4	410000	5.61	480000	5.68
	5	550000	5.74	560000	5.75
	Mean	476000	5.68	510000	5.70
	Sr		0.06		0.05
	RSDr, %		1.06		0.88
	p-value		0.46		

Table 36. Independent Laboratory Method Comparison Results: Ground Pork. (1)

		Petrifilm RAC Method - 22 Hours		Reference Method	
Level	Replicate	CFU/g	Log CFU/g	CFU/g	Log CFU/g
Low	1	300	2.48	500	2.70
	2	430	2.63	540	2.73
	3	440	2.64	740	2.87
	4	370	2.57	590	2.77
	5	360	2.56	370	2.57
	Mean	380	2.58	548	2.73
	Sr		0.11		0.07
	RSDr, %		4.27		2.57
	p-value		0.02		
Medium	1	5000	3.70	5700	3.76
	2	5300	3.72	4800	3.68
	3	7900	3.90	7300	3.86
	4	6000	3.78	8200	3.91
	5	5500	3.74	8500	3.93
	Mean	5940	3.77	6900	3.83
	Sr		0.11		0.08
	RSDr, %		2.92		2.09
	p-value		0.25		
High	1	90000	4.95	35000	4.54
	2	120000	5.08	97000	4.99
	3	120000	5.08	110000	5.04
	4	150000	5.18	100000	5.00
	5	130000	5.11	89000	4.95
	Mean	122000	5.08	86200	4.90
	Sr		0.04		0.08
	RSDr, %		0.79		1.63
	p-value		0.05		

DISCUSSION OF THE METHOD MODIFICATION JANUARY 2022 (3)

The data supports the claim that the Petrifilm RAC Plate is statistically equivalent to the FDA/BAM Ch 3 reference method for stainless steel, sealed concrete, and rubber surfaces.

The Petrifilm RAC Plate is robust, quick, and simple to perform, providing enumerable colonies in 22 to 26 h after incubation when compared to the 48 h of the reference method. The small size of the Petrifilm Plate allows for less space to be occupied by plates in the incubators. The addition of visual biochemical and enzymatic indicators makes enumeration of colonies a simple task by presenting colonies in either a blue or red color.

Table 1. Matrix study: Petrifilm RAC Plate vs BAM Ch. 3 results (3)

Matrix/Organism	Cont. level ^a	Petrifilm RAC Plate results		FDA/BAM Ch. 3 results ^d				90% CI ^g		95% CI	
		Mean ^b	s _r ^c	Mean	s _r	DOM ^e	SE ^f	LCL ^h	UCL ⁱ	LCL	UCL
Stainless steel/ <i>Listeria innocua</i> (ATCC ^j 33090)	Non ^k	0	0	0	0	0	0	0	0	0	0
	Low	1.609	0.297	1.531	0.244	0.078	0.078	-0.088	0.244	-0.139	0.294
	Med	2.144	0.156	2.093	0.133	0.051	0.057	-0.072	0.173	-0.109	0.210
	High	3.123	0.107	3.191	0.095	-0.067	0.017	-0.103	-0.032	-0.114	-0.021
Rubber/ <i>Klebsiella aerogenes</i> (ATCC 35029)	Non	0	0	0	0	0	0	0	0	0	0
	Low	1.823	0.056	1.803	0.101	0.020	0.047	-0.080	0.119	-0.110	0.150
	Med	2.862	0.042	2.819	0.070	0.043	0.041	-0.044	0.130	-0.070	0.156
	High	3.871	0.033	3.801	0.087	0.070	0.029	0.008	0.131	-0.010	0.150
Sealed concrete/ <i>Klebsiella oxytoca</i> (ATCC 43165)	Non	0	0	0	0	0	0	0	0	0	0
	Low	1.659	0.243	1.788	0.110	-0.129	0.136	-0.419	0.160	-0.506	0.247
	Med	2.136	0.017	2.141	0.042	-0.005	0.016	-0.038	0.028	-0.048	0.038
	High	3.105	0.055	3.124	0.062	-0.019	0.008	-0.036	-0.002	-0.041	0.003

^aAll surfaces are artificially contaminated, 100 cm² test areas.

^bMean of five replicate portions, after logarithmic transformation: Log₁₀[CFU/g + (0.1)]f.

^cRepeatability standard deviation.

^dFDA/BAM Ch. 3, Aerobic Plate Count.

^eDifference of means between the candidate and reference methods.

^fStandard error on the mean difference.

^gConfidence interval.

^hLower confidence limit for difference of means.

ⁱUpper confidence limit for difference of means.

^jAmerican Type Culture Collection, Manassas, VA.

^kNon-inoculated.

DISCUSSION OF THE METHOD MODIFICATION JANUARY 2023 (6)

Data from the lot-to-lot and real-time shelf-life study demonstrate that the Petrifilm Rapid Aerobic Count Plate performance is not impacted by the manufacturing site change from Brookings, SD to Wroclaw, Poland. Based on these results, Neogen recommends moving the Petrifilm RAC Plate method to the new manufacturing location in January 2023.

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