Comparative Evaluation of the 3M™ Petrifilm™ Aqua Plate Method vs. Multiple Reference Methods in Bottled Water — Claims Verification Study

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An independent laboratory comparative evaluation of the 3M™ Petrifilm™ Aqua Plate method (3M, St. Paul, Minnesota) for quantitation of heterotrophic bacteria, coliforms, *Enterobacteriaceae*, *Escherichia coli*, and yeast and mold in four types of bottled water (Purified, Regional Spring, Natural Spring, and Carbonated Natural Spring) was conducted at Q Laboratories, Inc., Cincinnati, OH. The 3M Petrifilm Aqua Heterotrophic Count Plate (AQHC) was compared to the Standard Methods for the Examination of Water and Wastewater (SMEWW) and the ISO reference method for the quantitation of heterotrophic bacteria through direct plating and membrane filtration. The 3M Petrifilm Aqua Coliform Count Plate (AQCC) and 3M Petrifilm E. Coli/Coliform Count Plate (EC) were compared to the SMEWW and the ISO method for the enumeration of coliforms and *E. coli* through membrane filtration. The 3M Petrifilm Aqua Enterobacteriaceae Count Plate (AQEB) was compared to a customer method for the enumeration of *Enterobacteriaceae* through membrane filtration. The 3M Petrifilm Aqua Yeast and Mold Count Plate (AQYM) was compared to the SMEWW and a customer method for the enumeration of yeast and mold through membrane filtration. Analysis of variance showed that there was no statistical difference between the 3M Petrifilm Aqua Plate methods at a low and a high inoculation level and their respective reference methods, except the mean log count per filter for the 3M Petrifilm Aqua AQCC Plate method was greater in value when compared to the SMEWW reference agar method at the high inoculation level and the day 5 mean log yeast and mold count per filter was greater in value between the 3M Petrifilm Aqua AQYM Plate method and a customer method at the high inoculation level.

This report presents the analytical results for comparison of the 3M™ Petrifilm™ Aqua Plate methods to reference methods and customer methods for the quantitation of heterotrophic bacteria, coliforms, Enterobacteriaceae, Escherichia coli, and yeast and molds in bottled water. All analyses were conducted at Q Laboratories, Inc. (Cincinnati, OH). All 3M Petrifilm Plates were provided by 3M.

Materials and Methods

The methodology for this study was followed as outlined in 3M's Protocol: 3M Petrifilm Plate Project Claims Verification Study Protocol Version 5.0 (October 8, 2010). The study consisted of quantifying heterotrophic bacteria, coliforms, *Enterobacteriaceae*, *Escherichia coli*, and yeast and mold on various 3M Petrifilm Aqua Plates and reference and customer method agars. Two separate lots of four types of bottled water (Purified, Regional Spring, Natural Spring, and Carbonated Natural Spring) were analyzed by each plate method. All Natural Spring and Carbonated Natural Spring waters were analyzed for the presence of naturally occurring bacteria. Due to the low level of naturally occurring bacteria found in those samples, two lots of each of the four types of bottled water were filter sterilized and inoculated with one of three organisms specified for each plating method as outlined

in Table 1 in Appendix 1. Water samples inoculated with organisms for heterotrophic bacteria, coliforms, *Enterobacteriaceae*, and *E. coli* were allowed to equilibrate for two weeks at room temperature (24 ± 2°C) and analyzed following the 3M Petrifilm Aqua Plate, reference and customer methods. Water samples inoculated with yeast and molds were held for 24 hours at room temperature (24 ± 2°C) and then analyzed following the 3M Petrifilm Aqua Plate, reference and customer methods. All products for this assay were purchased prior to study initiation from various local supermarkets.

Table A: Waters Used In Evaluation

Water Type	Brand	Country of Manufacture
Purified	Nestle Pure Life	United States
	Aquafina	United States
	Dasani	United States
Regional Spring	Trauth Dairy	United States
	Ice Mountain	United States
	Kroger	United States
Natural Spring	Evian	France
	Jana	Croatia
	Fiji	Fiji
	Ty Nant	Wales
	Voss Flat	Norway
Natural Spring (Carbonated)	Voss Sparkling	Norway
	Gerolsteiner	Germany
	Apollinaris	Germany
	Perrier	France

Heterotrophic Plate Count

For the analysis of heterotrophic bacteria, two lots each of the Natural Spring Waters and Carbonated Natural Spring Waters listed in Table A were screened for natural occurring bacteria in duplicate by direct plate count. The background screen revealed no natural contamination in the Carbonated Natural Spring waters and very low levels of natural contamination in the Natural Spring Waters. Therefore, in addition to testing uninoculated Natural Spring Waters by the methods outlined below, both the Natural Spring Waters and the Carbonated Natural Spring Waters were filter-sterilized with an 0.22µm filter and inoculated, along with the Regional Spring and Purified waters listed in Table A, with one of three organisms (*Escherichia coli* ATCC #25922, *Enterococcus faecium* ATCC #19434, and *Pseudomonas aeruginosa* ATCC #15442) as specified in Table 1 of Appendix 1.

A. Direct Plating Comparisons.

For uninoculated samples, Natural Spring Waters were analyzed by the SMEWW method and the ISO method outlined below. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22 µm) dilution blanks of each brand of water.

For inoculated waters, separate samples were spiked at a low level inoculum targeting 25 CFU/mL and a high level inoculum targeting 75 CFU/mL. After a two-week equilibration, waters were analyzed by the SMEWW method and the ISO method described below. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22 µm) dilution blanks of each brand of water.

Duplicate 1mL samples were plated on the 3M Petrifilm Aqua AQHC Plate and on reference method agar pour plates. One set of test portions was incubated at 36 ± 1°C for 45–48 hours. The test portions at this incubation condition included Standard Methods Plate Count Agar (PCA; SMEWW method), Yeast Extract Agar (YEA; ISO method), and 3M Petrifilm Aqua AQHC Plates. Additionally, another set of test portions was prepared and incubated at 22 ± 2°C for 68 ± 4 hours. Test portions at this incubation condition included YEA and 3M Petrifilm Aqua AQHC Plates. After incubation, all plates were counted. On the 3M Petrifilm Aqua AQHC Plate, all red colonies were counted. On PCA and YEA, all colonies in and on the agar were counted.

B. Filtered Sample Comparison.

For uninoculated samples, Natural Spring Waters were analyzed by the SMEWW method outlined below. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22µm) dilution blanks of each brand of water.

For inoculated samples, both lots of each of the four water types were inoculated with one of the three organisms outlined above. Separate samples were spiked at a low level inoculum targeting 25 CFU/100mL and a high level inoculum targeting 75 CFU/100mL. After a two-week equilibration, waters were analyzed by the SMEWW method described below. The 3M Petrifilm Aqua AQHC Plates used in this portion of the evaluation were pre-hydrated with 1 ml of sterile deionized water, held at refrigerated temperature for no longer than a week, and allowed to come to room temperature prior to analysis. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22µm) dilution blanks of each brand of water. Samples were analyzed in duplicate by filtering 100mL of sample through Mixed Cellulose Ester (MCE) membrane filters and placed onto PCA plates and onto 3M Petrifilm Aqua AQHC Plates. All plates were incubated at 35 ± 1°C for 48 ± 3 hours. On the 3M Petrifilm Aqua AQHC Plate, all red colonies were counted. On PCA, all colonies on the filter were counted. Detailed results are presented in Table 2 of Appendix 1.

Coliform Plate Count

Two lots of all four water types were inoculated with one of three organisms (*Escherichia coli* ATCC #25922, *Klebsiella pneumonia* ATCC #4352, and *Enterobacter aerogenes* ATCC #35029) as specified in Table 1 of Appendix 1. Samples were analyzed by membrane filtration by both SMEWW and ISO 9308-1:2000: *Water quality – Detection and enumeration of Escherichia coli and coliform bacteria* methods and compared to the 3M Petrifilm Aqua Coliform Count Plate (AQCC) method. For the SMEWW method comparison, separate samples were spiked at a low level inoculum targeting 25 CFU/100mL and a high level inoculum targeting 75 CFU/100mL. For the ISO method comparison, separate samples were spiked at a low level inoculum targeting 25 CFU/250mL and a high level inoculum targeting 75 CFU/250mL. After a two-week equilibration, waters were analyzed by the methods described below. For both comparisons, the 3M Petrifilm Aqua AQCC Plates were pre-hydrated with 1 ml of sterile deionized water, held at refrigerated temperature for no longer than a week, and allowed to come to room temperature prior to analysis. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22µm) dilution blanks of each brand of water.

A. SMEWW Method comparison.

For the comparison with the SMEWW method, 100mL portions of inoculated samples were filtered in duplicate through MCE membrane filters and placed onto 3M Petrifilm Aqua AQCC Plates and endo LES agar plates. 3M Petrifilm Aqua AQCC Plates were incubated for 24 ± 2 hours at 35 ± 0.5°C and endo LES agar plates were incubated for 22–24 hours at 35 ± 0.5°C. After incubation, 3M Petrifilm Aqua AQCC Plates were examined for typical colonies (red colony with associated gas bubbles) and atypical colonies (red without gas bubbles). The endo LES agar plates were observed for typical colonies that were pink to dark red with a green metallic surface sheen. One typical colony (both endo LES and 3M Petrifilm Aqua AQCC Plate) and two atypical colonies (3M Petrifilm Aqua AQCC Plate only) per sample were picked to Lauryl Tryptose Broth (LTB) tubes and incubated at 35 ± 0.5°C for 48 ± 2 hours. After incubation, LTB tubes were examined for gas production, and a loopful of broth from positive tubes was transferred to Brilliant Green Lactose Bile (BGLB) tubes and incubated at 35 ± 0.5°C for 48 ± 2 hours. After incubation, tubes were observed for gas production. Samples producing gas were recorded as positive. Atypical colonies that produced reactions typical of coliforms were recorded as coliforms.

B. ISO Method comparison.

Duplicate 250mL portions of inoculated samples were filtered through MCE filters and placed on 3M Petrifilm Aqua AQCC Plates or through Cellulose Nitrate (CN) membrane filters and placed onto Lactose TTC agar with Tergitol 7 plates. 3M

Petrifilm Aqua AQCC Plates were incubated at 36 ± 2°C for 24 ± 2 hours and Lactose TTC plates were incubated at 36 ± 2°C for 21 ± 3 hours. After incubation 3M Petrifilm Aqua AQCC Plates were examined for typical colonies (red colony with associated gas bubbles) and atypical colonies (red without gas bubbles). Lactose TTC plates were observed for typical yellow to yellow-orange colonies with yellow acid zones. One typical colony (both Lactose TTC and 3M Petrifilm Aqua AQCC Plate) and two atypical colonies (3M Petrifilm Aqua AQCC Plate only) per sample were picked to TSA and incubated at 36 ± 2°C for 24 ± 2 hours. Representative colonies on the TSA were confirmed according to the ISO reference method by conducting the spot Oxidase test. Additionally, colonies were picked and inoculated into 3mL tryptophan broth. Broth was incubated at 44 ± 0.5°C for 21 h ± 3 hours, then 0.2–0.3mL of Kovak's reagent was added to test for the presence of indole. Samples that developed a cherry-red color at the surface of the broth were recorded as positive for indole production. Those colonies that produced oxidase negative and indole negative results were recorded as coliforms. Colonies that produced oxidase negative and indole positive results were recorded as *E. coli*.

All confirmed (typical and confirmed atypical) counts were used in the data analysis. Detailed results are presented in Table 3 of Appendix 1.

Enterobacteriaceae Plate Count

Two lots of all four types of water samples were inoculated with one of three organisms (*Escherichia coli* ATCC #25922, *Klebsiella pneumonia* ATCC #4352, and *Enterobacter aerogenes* ATCC #35029) as specified in Table 1 of Appendix 1. For the comparison, separate samples were spiked at a low level inoculum targeting 25 CFU/100mL and a high level inoculum targeting 75 CFU/100mL. After a two-week equilibration, waters were analyzed by the method described below. The 3M Petrifilm Aqua AQEB Plates were pre-hydrated with 1mL of sterile deionized water, held at refrigerated temperature for no longer than a week, and allowed to come to room temperature prior to analysis. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22 μm) dilution blanks of each brand of water.

Samples were analyzed by membrane filtration by both a customer method and the 3M Petrifilm Aqua Enterobacteriaceae Count Plate (AQEB) method. 100mL portions of inoculated samples were filtered through MCE membrane filters and placed onto 3M Petrifilm Aqua AQEB Plates in duplicate and onto Violet Red Bile Glucose (VRBG) agar in duplicate. 3M Petrifilm Aqua AQEB Plates were incubated at 36 ± 1°C for 24 ± 2 hours and VRBG plates were incubated at 36 ± 1°C for 24 hours.

After incubation, 3M Petrifilm Aqua AQEB Plates were observed for typical colonies (red colony with gas and/or a yellow acid zone) and VRBG plates were observed for typical pink to dark purple colonies with a halo precipitation in the surrounding agar. Detailed results are presented in Table 4 of Appendix 1.

Escherichia coli Plate Count

Two lots of all four types of water samples were inoculated with one of three organisms (*Escherichia coli* ATCC #25922, *Klebsiella pneumonia* ATCC #4352, and *Enterobacter aerogenes* ATCC #35029) as specified in Table 1 of Appendix 1 and analyzed by membrane filtration by both the SMEWW and the ISO 9308-1:2000: *Water quality – Detection and enumeration of Escherichia coli and coliform bacteria methods* and the 3M Petrifilm E. Coli/Coliform Count Plate (EC) method. For the SMEWW method comparison, separate samples were spiked at a low level inoculum targeting 25 CFU/100mL and a high level inoculum targeting 75 CFU/100mL. For the ISO method comparison, separate samples were spiked at a low level inoculum targeting 25 CFU/250mL and a high level inoculum targeting 75 CFU/250mL. After a two-week equilibration, waters were analyzed by the methods described below. For both comparisons, the 3M Petrifilm EC Plates were pre-hydrated with 1mL of sterile deionized water, held at refrigerated temperature for no longer than a week, and allowed to come to room temperature prior to analysis. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22μm) dilution blanks of each brand of water.

A. SMEWW Method comparison.

For the SMEWW method comparison, 100mL portions of inoculated samples were filtered in duplicate through MCE membrane filters and placed onto 3M Petrfilm EC Plates and endo LES agar plates. 3M Petrfilm EC Plates were incubated for 24 ± 2 hours at 35 ± 0.5°C and endo LES agar plates were incubated for 22–24 hours at 35 ± 0.5°C. After incubation, 3M Petrfilm EC Plates were examined for typical colonies (blue or red, producing gas bubbles) and atypical colonies (blue or red, without gas production), and endo LES agar plates were observed for colonies that were pink to dark red with a green metallic surface sheen. One typical colony (for endo LES agar and 3M Petrfilm EC Plates) and two atypical colonies (3M Petrfilm EC Plates only) per sample were picked to Lauryl Tryptose Broth (LTB) tubes and incubated at 35 ± 1°C for 48 ± 2 hours. After incubation, LTB tubes were examined for gas production, and a loopful of broth from positive tubes were transferred to Brilliant Green Lactose Bile (BGLB) tubes (for the analysis of the coliform bacteria) and incubated at 35 ± 1°C for 48 ± 2 hours and to EC broth (for the analysis of *E. coli*) and incubated at 45.5 ± 0.2°C for 48 ± 2 hours. After incubation, tubes were observed for gas production. Samples producing gas in BGLB tubes were recorded as positive. Samples producing gas in EC broth tubes were streaked to Levine's Eosin-Methylene Blue agar (l-EMB) and incubated for 18–24 hours at 35 ± 1°C. Plates were examined for typical colonies (red or pink with green metallic sheen). Typical colonies were transferred to Tryptone broth, MR-VP broth, Kosers' Citrate broth, and LTB and incubated at 35 ± 1°C. After 24 hours, a drop of Kovacs' reagent was added to the Tryptone broth to test for the presence of indole. Appearance of a distinct red color in the upper layer was recorded as positive. After 48 ± 2 hours of incubation, a 1mL aliquot was removed from the MR-VP tubes and the tubes were reincubated for an additional 48 ± 2 hours. 0.6mL of α-naphthol, 0.2mL of 40% KOH, and a few crystals of creatine were added to the 1mL aliquot, allowed to incubate at room temperature for 2 hours. A positive reaction was recorded if eosin pink color developed. After the additional 48 hour incubation, five drops of methyl red solution were added to each MR-VP tube and a distinct color change to red was indicative of a positive reaction. After a 96 ± 4 hour incubation the Kosers' Citrate tubes were removed and observed for turbidity. An abscess of turbidity indicated a negative reaction. Colonies that produced reactions typical of *E. coli* and coliforms were recorded as such and statistical analysis was conducted.

B. ISO Method comparison.

250mL portions of inoculated samples were filtered in duplicate through Mixed Cellulose Ester (MCE) membrane filters and placed onto 3M Petrfilm EC Plates or through Cellulose Nitrate (CN) membrane filters and placed onto Lactose TTC agar with Tergitol 7 plates. 3M Petrfilm EC Plates were incubated at 36 ± 2°C for 24 ± 2 hours and Lactose TTC plates were incubated at 36 ± 2°C for 21 ± 3 hours. After incubation 3M Petrfilm EC Plates were examined for typical colonies (blue or red, producing gas bubbles) and atypical colonies (blue or red, without gas production) and Lactose TTC plates were observed for yellow to yellow-orange colonies with yellow acid zones. One typical colony (Lactose TTC and 3M Petrfilm EC Plate) and two atypical colonies (3M Petrfilm EC Plate only) per sample were picked to TSA and incubated at 36 ± 2°C for 24 ± 2 hours. Representative colonies on the TSA were confirmed according to the ISO reference method by conducting the spot Oxidase test. Additionally, a typical colony was picked and inoculated into 3 mL tryptophan broth. Broth was incubated at 44 ± 0.5°C for 21 ± 3 hours, then 0.2–0.3mL of Kovak's reagent was added to test for the presence of indole. Samples that developed a cherry-red color at the surface of the broth were recorded as positive for indole production. Those colonies that produced oxidase negative and indole negative results were recorded as coliforms. Colonies that produced oxidase negative and indole positive results were recorded as *E. coli*.

All confirmed (typical and confirmed atypical) counts were used in the data analysis. Detailed Results are presented in Table 5 of Appendix 1.

Yeast and Mold Plate Count

Two lots of all four types of water samples were inoculated with one of three organisms (*Penicillium sp.* ATCC #18307,

Paecilomyces sp. ATCC #1114, and *Candida albicans* ATCC #10231) as specified in Table 1 of Appendix 1. Separate samples were spiked at a low level inoculum targeting 25 CFU/100mL and a high level inoculum targeting 75 CFU/100mL and were allowed to equilibrate overnight at room temperature. In order to achieve a countable range, ten-fold serial dilutions were made using filter sterilized (22µm) dilution blanks of each brand of water. Samples were analyzed by membrane filtration for the analysis of yeast and molds by both the SMEWW method and a customer method using acidified Potato Dextrose agar (aPDA).

A. SMEWW Method comparison.

100mL portions of inoculated samples were filtered in duplicate through MCE membrane filters and placed onto 3M Petrifilm Aqua AQYM Plates and Cooke Rose Bengal agar (CRB) plates. After filtration, membrane filters were placed onto the 3M Petrifilm Aqua AQYM Plates and 1mL of sterile deionized water was placed on top of the filter and the hydration fluid was spread on the plate. 3M Petrifilm Aqua AQYM Plates and CRB plates were incubated for 5 days at 20 ± 1°C. Plates with yeast and mold colonies in the countable range were read and the data recorded at both 3 and 5 days.

B. Customer Method comparison.

100mL portions of inoculated samples were filtered in duplicate through MCE membrane filters and placed onto 3M Petrifilm Aqua AQYM Plates and aPDA plates. After filtration, membrane filters were placed onto the 3M Petrifilm Aqua AQYM Plates, 1mL of sterile deionized water was placed on top of the filter, and the hydration fluid was spread on the plate. 3M Petrifilm Aqua AQYM Plates and aPDA plates were incubated at 25 ± 1°C for 5 days. Plates with yeast and mold colonies in the countable range were read and the data recorded at both 3 and 5 days. Detailed results are presented in Table 6 of Appendix 1.

Statistical Analysis

Plates with 1–250 colonies were considered for use in the analysis on the heterotrophic plates, 1–150 on the coliform plates/agars, 1–100 on the EB plates/agars, and 1–150 for the yeast and mold plates/agars. If none of the plates had the minimum number of colonies, the exact count on the least dilute test was selected for analysis. Procedures described by the various standards were used to calculate colony counts. Specifically, a weighted average was reported for each heterotrophic test portion when the ISO method was used as the reference. These counts were converted to $\log_{10}$ counts to more nearly match the underlying assumption of a normal distribution. Indefinite values (<1 colony forming unit/sample) were treated as missing values in the analysis. Analysis of variance was used to calculate the method repeatability. Repeatability variances were then compared using an F-ratio test. A paired *t* test (by inoculation level) was used to compare the differences in counts between the Petrifilm Plate methods and the reference methods. In all statistical tests, a resulting value of $p<0.05$ was taken to indicate a significant difference.

Results

Two separate lots of four types of bottled water (Purified, Regional Spring, Natural Spring, and Carbonated Natural Spring) were evaluated for heterotrophic bacteria, coliforms, *Enterobacteriaceae* and yeast and mold by the 3M Petrifilm Aqua Plate methods and the corresponding reference method.

Heterotrophic plate method

Heterotrophic counts were obtained using the 3M Petrifilm Aqua AQHC Plate method and the PCA method (SMEWW). At the uninoculated level, the mean log heterotrophic count from the 3M Petrifilm Aqua AQHC Plate method was not statistically different from the mean log count from the PCA method (p-value = 0.488). At the low and high inoculation levels, the two methods were also similar (p-values equal to 0.985 and 0.917, respectively) (see Table 7).

Heterotrophic counts were also obtained using the YEA method (ISO). At the low inoculation level, the mean log heterotrophic count per 1mL direct on the 3M Petrifilm Aqua AQHC Plate was not significantly different from the mean log heterotrophic count using the YEA method (p-value = 0.637). At the high inoculation level, there was no statistical difference between the two methods (p-value = 0.204) (see Table 7).

When comparing the 3M Petrifilm Aqua AQHC Plate method with an incubation temperature of 22°C and the YEA method with an incubation temperature of 22°C, there was no statistical difference at any of the inoculation levels – uninoculated, low, and high (p-values equal to 0.463, 0.637, and 0.202, respectively) (see Table 7).

Heterotrophic counts were obtained using the 3M Petrifilm Aqua AQHC Plate method and the PCA method (SMEWW) with membrane filtration. The mean log heterotrophic counts per filter were not significantly different between the 3M Petrifilm Aqua AQHC Plate method and the PCA method at either the uninoculated level (p-value = 0.212), the low inoculation level (p-value = 0.833), or at the high inoculation level (p-value = 0.603) (see Table 7).

The repeatability variances of the 3M Petrifilm Aqua AQHC Plate method were not significantly different from that of the reference methods, except in the case of the comparison between the 3M Petrifilm Aqua AQHC Plate method and the PCA method with direct plating and an incubation period of 36°C. In that comparison the repeatability variance of the 3M Petrifilm Aqua AQHC Plate method was better than that of the PCA method (see Table 7).

Coliform plate method

Coliform counts were obtained using the 3M Petrifilm Aqua AQCC Plate method and the endo LES agar method (SMEWW). The mean log coliform count per filter was not significantly different between the 3M Petrifilm Aqua AQCC Plate method and the endo LES agar method at the low inoculation level (p-value = 0.403). At the high inoculation level, the mean log coliform count per filter was significantly different between that obtained from the 3M Petrifilm Aqua AQCC Plate method and the mean log count from the endo LES agar method (p = 0.016). On average, the log counts from the 3M Petrifilm Aqua AQCC Plate were greater in value than those for the endo LES agar method (see Table 7).

The repeatability variance of the 3M Petrifilm Aqua AQCC Plate method was significantly better from that of the endo LES agar method for the low inoculation level. For the high inoculation level, the repeatability variance of the 3M Petrifilm Aqua AQCC Plate method was not significantly different from that of the endo LES agar method (see Table 7).

Coliform counts were obtained using the 3M Petrifilm Aqua AQCC Plate method and the Lactose TTC with Tergitol 7 agar method (ISO). The mean log coliform counts per filter were not significantly different between the 3M Petrifilm Aqua AQCC Plate method and the Lactose TTC with Tergitol 7 agar method at the low inoculation level (p-value = 0.495) and the high inoculation level (p-value = 0.638) (see Table 7).

As was the case with the comparison between the 3M Petrifilm Aqua AQCC Plate method and the endo LES agar method, the repeatability variances were better and not different (low level and high level, respectively) between the 3M Petrifilm Aqua AQCC Plate method and the Lactose TTC with Tergitol 7 agar method (see Table 7).

Enterobacteriaceae plate method

Enterobacteriaceae counts were obtained using the 3M Petrifilm Aqua AQEB Plate method and VRBG agar method, a customer method. The mean log Enterobacteriaceae counts per filter were not significantly different between the 3M Petrifilm Aqua AQEB Plate method and the VRBG agar method at the low inoculation level (p-value = 0.844) and the high inoculation level (p-value = 0.47) (see Table 7).

The repeatability variances of the 3M Petrifilm Aqua AQEB Plate method were not significantly different from those of the VRBG method for the high level of inoculation. The repeatability variance of the VRBG agar method was better than that of the 3M Petrifilm Aqua AQEB Plate method for the low inoculation level (see Table 7).

Yeast and Mold plate method

Yeast and Mold counts were obtained using the 3M Petrifilm Aqua AQYM Plate method and Cooke Rose Bengal agar (CRB) – SMEWW reference agar method – and acidified Potato Dextrose agar (aPDA), a customer method. The mean log yeast and mold counts per filter were not significantly different between the 3M Petrifilm Aqua AQYM Plate method and the CRB agar method at the low inoculation level at day 3 (p-value = 0.745) and the high inoculation level at day 3 (p-value = 0.063). The mean log yeast and mold counts per filter were not significantly different between the 3M Petrifilm Aqua AQYM Plate method and the CRB agar method at the low inoculation level at day 5 (p-value = 0.121) and the high inoculation level at day 5 (p-value = 0.052) (see Table 7).

The mean log yeast and mold counts per filter were not significantly different between the 3M Petrifilm Aqua AQYM Plate method and the aPDA agar method at the low inoculation level at day 3 (p-value = 0.844) and the high inoculation level at day 3 (p-value = 0.723). The mean log yeast and mold counts per filter were not significantly different between the 3M Petrifilm Aqua AQYM Plate method and the aPDA agar method at the low inoculation level at day 5 (p-value = 0.506). At the high inoculation level at day 5, the mean log yeast and mold counts per filter were significantly different between the 3M Petrifilm Aqua AQYM Plate method and the aPDA method (p = 0.036) with the log counts per filter for the 3M Petrifilm Aqua AQYM Plate method, on average, greater in value than those from the aPDA method (see Table 7).

The repeatability variances of the 3M Petrifilm Aqua AQYM Plate method were not significantly different from those of the reference methods for the low and high levels of inoculation when the plates were enumerated at three days. When the plates were enumerated after five days, the repeatability variances were also not different between the 3M Petrifilm Aqua AQYM Plate method and the reference methods at the high level of inoculation. The repeatability variances of the 3M Petrifilm Aqua AQYM Plate method were significantly better than those from the reference methods at the low level of inoculation when the plates were enumerated after five days (see Table 7).

Discussion

The results of this independent evaluation demonstrate the reliability of the 3M Petrifilm Plate methods as an easy-to-use alternative to the reference methods for the analysis of bacteria, yeast and molds in bottled water by direct plate method or membrane filtration. All five types of 3M Petrifilm Plates reduce the cost of sample preparation by eliminating the need for producing and sterilizing reference method agars. 3M Petrifilm Aqua AQHC Plates, 3M Petrifilm Aqua AQCC Plates, and 3M Petrifilm Aqua AQEB Plates increase sample productivity with the ability to rehydrate the plates and store them at refrigeration temperature for up to a week. Additionally, the 3M Petrifilm Aqua AQCC Plate method may eliminate the need for lengthy confirmation of coliforms by producing colored colonies with gas production compared to the reference agars. Similarly, the 3M Petrifilm E. coli/Coliform Plate method may eliminate the need for lengthy confirmation of coliforms and of *E. coli* by producing distinctly colored colonies with gas production compared to the reference agars.

APPENDIX 1

Table 1: Organism and Water Inoculation Guideline

Water Type	Sample	Heterotrophic Plate (AQHC)	Coliform Plate (AQCC)	Escherichia coli Plate (EC)	Enterobacteriaceae Plate (AQEB)	Yeast and Mold Plate (AQYM)
Purified	Dasani, Lot 1	*Pseudomonas aeruginosa* ATCC 15442	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Penicillium sp.* ATCC 18307
	Dasani, Lot 2	*Enterococcus faecium* ATCC 19434	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Paecilomyces sp.* ATCC 1114
	Nestle Pure Life, Lot 1	*Pseudomonas aeruginosa* ATCC 15442	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Paecilomyces sp.* ATCC 1114
	Nestle Pure Life, Lot 2	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Escherichia coli* ATCC 25922	*Penicillium sp.* ATCC 18307
	Aquafina, Lot 1	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Paecilomyces sp.* ATCC 1114
	Aquafina, Lot 2	*Enterococcus faecium* ATCC 19434	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Candida albicans* ATCC 10231
Regional Spring #1	Ice Mountain, Lot 1	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Escherichia coli* ATCC 25922	*Candida albicans* ATCC 10231
	Ice Mountain, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352eumoniae	*Penicillium sp.* ATCC 18307
Regional Spring #2	Kroger Treated, Lot 1	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Escherichia coli* ATCC 25922	*Paecilomyces sp.* ATCC 1114
	Kroger Treated, Lot 2	*Enterococcus faecium* ATCC 19434	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Klebsiella pneumonia* ATCC # 4352	*Candida albicans* ATCC 10231
Regional Spring #3	Trauth, Lot 1	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Penicillium sp.* ATCC 18307
	Trauth, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Escherichia coli* ATCC 25922	*Paecilomyces sp.* ATCC 1114
Natural Spring	Evian, Lot 1	*Enterococcus faecium* ATCC 19434	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Klebsiella pneumonia* ATCC # 4352	*Penicillium sp.* ATCC 18307
	Evian, Lot 2	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Candida albicans* ATCC 10231
	Jana, Lot 1	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Escherichia coli* ATCC 25922	*Paecilomyces sp.* ATCC 1114
	Jana, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Penicillium sp.* ATCC 18307
	Fiji, Lot 1	*Enterococcus faecium* ATCC 19434	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Paecilomyces sp.* ATCC 1114
	Fiji, Lot 2	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Enterobacter aerogenes* ATCC #35029	*Penicillium sp.* ATCC 18307
	Voss, Lot 1	*Enterococcus faecium* ATCC 19434	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Candida albicans* ATCC 10231
	Voss, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Enterobacter aerogenes* ATCC #35029	*Penicillium sp.* ATCC 18307
	Ty Nant Spring, Lot 1	*Enterococcus faecium* ATCC 19434	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Enterobacter aerogenes* ATCC #35029	*Candida albicans* ATCC 10231
	Ty Nant Spring, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Escherichia coli* ATCC 25922	*Penicillium sp.* ATCC 18307

Table 1 (continued): Organism and Water Inoculation Guideline

Water Type	Sample	Heterotrophic Plate (AQHC)	Coliform Plate (AQCC)	Escherichia coli Plate (EC)	Enterobacteriaceae Plate (AQEB)	Yeast and Mold Plate (AQYM)
Natural Spring, carbonated	Gerolsteiner, Lot 1	*Escherichia coli* ATCC 25922	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Klebsiella pneumonia* ATCC # 4352	*Penicillium sp.* ATCC 18307
	Gerolsteiner, Lot 2	*Enterococcus faecium* ATCC 19434	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Escherichia coli* ATCC 25922	*Candida albicans* ATCC 10231
	Apollinaris, Lot 1	*Enterococcus faecium* ATCC 19434	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Klebsiella pneumonia* ATCC # 4352	*Paecilomyces sp.* ATCC 1114
	Apollinaris, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Enterobacter aerogenes* ATCC #35029	*Candida albicans* ATCC 10231
	Perrier, Lot 1	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Klebsiella pneumonia* ATCC # 4352	*Candida albicans* ATCC 10231
	Perrier, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Enterobacter aerogenes* ATCC #35029	*Paecilomyces sp.* ATCC 1114
	Voss Sparkling, Lot 1	*Enterococcus faecium* ATCC 19434	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Escherichia coli* ATCC 25922	*Paecilomyces sp.* ATCC 1114
	Voss Sparkling, Lot 2	*Pseudomonas aeruginosa* ATCC 15442	*Klebsiella pneumonia* ATCC # 4352	*Klebsiella pneumonia* ATCC # 4352	*Enterobacter aerogenes* ATCC #35029	*Candida albicans* ATCC 10231

Table 2: Results for AQHC vs. SMEWW (PCA) and ISO (YEA) by Direct Plating (CFU/mL) and Membrane Filtration (CFU/100mL)

				Direct Plating									Membrane Filtration			
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQHC (36˚C)	Log Avg. AQHC (36˚C)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C)	Avg. YEA (36˚C)	Log Avg. YEA (36˚C)	Avg. AQHC (22˚C)	Log Avg. AQHC (22˚C)	Avg. YEA (22˚C)	Log Avg. YEA (22˚C)	Avg. AQHC (36˚C) (SMEWW)	Log Avg. AQHC (36˚C) (SMEWW)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C) (SMEWW)
	1	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	1	Dasani	Low	17	1.2297	23	1.3613	21	1.3202	21	1.3217	22	1.3314	28	1.4460	27	1.4169
	1	Dasani	High	52	1.7147	60	1.7776	58	1.7593	57	1.7519	59	1.7708	79	1.8975	88	1.9404
	2	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	2	Dasani	Low	50	1.6919	48	1.6809	56	1.7471	54	1.7282	53	1.7192	52	1.7093	60	1.7720
	2	Dasani	High	122	2.0843	127	2.1033	114	2.0565	115	2.0586	110	2.0393	112	2.0491	119	2.0720
	1	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	1	Nestle Purelife	Low	21	1.3217	23	1.3469	27	1.4311	26	1.4137	27	1.4302	26	1.4098	22	1.3295
	1	Nestle Purelife	High	73	1.8613	63	1.7955	65	1.8116	64	1.8028	64	1.8049	73	1.8627	75	1.8741
	2	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Nestle Purelife	Low	40	1.5957	47	1.6674	46	1.6559	44	1.6424	46	1.6618	45	1.6470	46	1.6611
	2	Nestle Purelife	High	88	1.9427	92	1.9634	90	1.9517	84	1.9216	88	1.9440	86	1.9344	86	1.9334
	1	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Aquafina	Low	53	1.7223	42	1.6228	44	1.6424	49	1.6887	45	1.6493	44	1.6362	41	1.6074
	1	Aquafina	High	83	1.9155	94	1.9708	86	1.9278	85	1.9291	91	1.9558	82	1.9105	74	1.8686

Table 2 (continued): Results for AQHC vs. SMEWW (PCA) and ISO (YEA) by Direct Plating (CFU/mL) and Membrane Filtration (CFU/100mL)

				Direct Plating										Membrane Filtration			
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQHC (36˚C)	Log Avg. AQHC (36˚C)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C)	Avg. YEA (36˚C)	Log Avg. YEA (36˚C)	Avg. AQHC (22˚C)	Log Avg. AQHC (22˚C)	Avg. YEA (22˚C)	Log Avg. YEA (22˚C)	Avg. AQHC (36˚C) (SMEWW)	Log Avg. AQHC (36˚C) (SMEWW)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C) (SMEWW)
	2	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	2	Aquafina	Low	59	1.7699	52	1.7113	64	1.7927	49	1.6855	55	1.7386	59	1.7699	54	1.7305
	2	Aquafina	High	114	2.0545	121	2.0786	119	2.0755	116	2.0619	107	2.0293	128	2.1067	134	2.1254
	1	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Ice Mountain	Low	46	1.6623	40	1.5986	39	1.5854	46	1.6567	46	1.6602	52	1.7093	45	1.6528
	1	Ice Mountain	High	101	2.0041	95	1.9751	94	1.9708	90	1.9540	99	1.9942	97	1.9844	91	1.9561
	2	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Ice Mountain	Low	25	1.3779	30	1.4667	29	1.4614	25	1.3869	25	1.3891	25	1.3869	32	1.4978
	2	Ice Mountain	High	55	1.7342	60	1.7719	56	1.7434	58	1.7628	55	1.7349	74	1.8660	81	1.9054
	1	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Kroger Treated	Low	44	1.6417	49	1.6898	46	1.6535	55	1.7401	59	1.7671	45	1.6515	51	1.7022
	1	Kroger Treated	High	83	1.9155	85	1.9262	83	1.9190	93	1.9684	87	1.9395	83	1.9186	77	1.8816
	2	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Kroger Treated	Low	63	1.7988	53	1.7223	55	1.7359	64	1.8043	60	1.7766	53	1.7197	56	1.7471
	2	Kroger Treated	High	103	2.0096	111	2.0453	114	2.0568	104	2.0169	111	2.0418	104	2.0165	108	2.0331
	1	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Trauth Treated	Low	47	1.6696	45	1.6470	45	1.6461	52	1.7140	44	1.6430	45	1.6481	47	1.6712
	1	Trauth Treated	High	104	2.0169	93	1.9684	98	1.9890	95	1.9753	102	2.0062	92	1.9637	88	1.9422
	2	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Trauth Treated	Low	25	1.3948	22	1.3295	25	1.3891	25	1.3779	21	1.3106	35	1.5396	31	1.4828
	2	Trauth Treated	High	73	1.8613	65	1.8080	61	1.7800	63	1.7955	57	1.7504	83	1.9188	93	1.9685
	1	Evian	10^0	4	0.5396	4	0.5880	4	0.5396	3	0.3495	4	0.6021	32	1.4938	39	1.5851
Natural	1	Evian	10^-1	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	4	0.5396	5	0.6505
	1	Evian	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	2	Evian	10^0	2	0.3010	2	0.3010	2	0.2386	3	0.3891	1	0.0000	13	1.0966	10	0.9771
Natural	2	Evian	10^-1	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	1	0.0000	2	0.1505
	2	Evian	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	1	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	1	Evian	Low	58	1.7593	63	1.7988	58	1.7549	55	1.7397	57	1.7491	42	1.6173	46	1.6611
	1	Evian	High	106	2.0248	118	2.0716	116	2.0624	113	2.0528	113	2.0517	117	2.0658	111	2.0433
	2	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Evian	Low	44	1.6424	46	1.6623	45	1.6505	49	1.6839	41	1.6123	47	1.6720	54	1.7321
	2	Evian	High	89	1.9469	87	1.9393	91	1.9581	92	1.9609	87	1.9394	87	1.9370	91	1.9566
	1	Jana	10^0	14	1.1276	15	1.1722	15	1.1761	10	0.9978	13	1.1127	113	2.0504	102	2.0076
Natural	1	Jana	10^-1	1	0.0000	2	0.1505	1	0.0000	2	0.1505	1	0.0000	12	1.0570	11	1.0396
	1	Jana	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	1	0.0000	2	0.1505

Table 2 (continued): Results for AQHC vs. SMEWW (PCA) and ISO (YEA) by Direct Plating (CFU/mL) and Membrane Filtration (CFU/100mL)

				Direct Plating										Membrane Filtration			
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQHC (36˚C)	Log Avg. AQHC (36˚C)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C)	Avg. YEA (36˚C)	Log Avg. YEA (36˚C)	Avg. AQHC (22˚C)	Log Avg. AQHC (22˚C)	Avg. YEA (22˚C)	Log Avg. YEA (22˚C)	Avg. AQHC (36˚C) (SMEWW)	Log Avg. AQHC (36˚C) (SMEWW)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C) (SMEWW)
	2	Jana	10^0	139	2.1408	123	2.0880	136	2.1319	125	2.0949	130	2.1108	TNTC*	NA	TNTC	NA
Natural	2	Jana	10^-1	13	1.0880	13	1.0938	13	1.0792	12	1.0777	14	1.1276	129	2.1099	143	2.1552
	2	Jana	10^-2	1	0.0000	1	0.0000	2	0.1505	2	0.1505	1	0.0000	13	1.1127	13	1.0880
	1	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Jana	Low	41	1.6021	50	1.6881	44	1.6336	45	1.6522	45	1.6450	44	1.6382	42	1.6173
	1	Jana	High	86	1.9342	76	1.8808	85	1.9283	88	1.9399	84	1.9238	84	1.9235	81	1.9054
	2	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Jana	Low	21	1.3202	25	1.3869	26	1.4058	22	1.3406	23	1.3469	35	1.5396	41	1.6095
	2	Jana	High	62	1.7915	57	1.7556	61	1.7810	61	1.7763	55	1.7355	82	1.9105	74	1.8682
	1	Fiji	10^0	9	0.9225	6	0.7526	9	0.9287	8	0.8891	7	0.8010	73	1.8613	68	1.8287
Natural	1	Fiji	10^-1	1	0.0000	0	0.0000	1	0.0000	0	0.0000	0	0.0000	8	0.8741	8	0.8495
	1	Fiji	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	2	Fiji	10^0	200	2.2998	213	2.3284	209	2.3201	196	2.2919	189	2.2759	TNTC	NA	TNTC	NA
Natural	2	Fiji	10^-1	23	1.3512	23	1.3469	19	1.2788	18	1.2546	21	1.3106	TNTC	NA	TNTC	NA
	2	Fiji	10^-2	3	0.3891	2	0.3010	4	0.3891	2	0.3010	3	0.3891	23	1.3613	23	1.3469
	1	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	1	Fiji	Low	53	1.7240	49	1.6902	55	1.7342	56	1.7421	62	1.7915	57	1.7556	53	1.7186
	1	Fiji	High	114	2.0545	112	2.0481	109	2.0374	114	2.0535	114	2.0568	115	2.0599	102	2.0063
	2	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Fiji	Low	44	1.6406	37	1.5619	45	1.6470	46	1.6627	47	1.6662	52	1.7153	43	1.6269
	2	Fiji	High	96	1.9817	94	1.9705	87	1.9395	85	1.9268	94	1.9729	77	1.8834	86	1.9318
	1	Voss	10^0	53	1.7230	61	1.7848	51	1.7022	58	1.7593	55	1.7404	TNTC	NA	TNTC	NA
Natural	1	Voss	10^-1	6	0.7386	8	0.8741	5	0.6276	6	0.7236	7	0.8010	57	1.7553	47	1.6657
	1	Voss	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	7	0.8010	6	0.7236
	2	Voss	10^0	14	1.1276	13	1.1021	13	1.0966	12	1.0731	12	1.0792	192	2.2809	166	2.2188
Natural	2	Voss	10^-1	2	0.1505	1	0.0000	0	0.0000	1	0.0000	1	0.0000	16	1.1963	13	1.1087
	2	Voss	10^-2	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	2	0.3010	2	0.1505
	1	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	1	Voss	Low	63	1.7988	61	1.7848	56	1.7434	56	1.7429	59	1.7693	53	1.7168	52	1.7108
	1	Voss	High	8	0.8741	12	1.0603	8	0.8891	115	2.0601	107	2.0273	113	2.0504	124	2.0916
	2	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Voss	Low	27	1.4287	25	1.3869	23	1.3469	22	1.3383	23	1.3521	22	1.3295	28	1.4469
	2	Voss	High	68	1.8292	61	1.7814	58	1.7569	55	1.7355	55	1.7359	82	1.9135	92	1.9637
	1	Voss Sparkling	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT**	-	NT	-
Natural	1	Voss Sparkling	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Voss Sparkling	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-

Table 2 (continued): Results for AQHC vs. SMEWW (PCA) and ISO (YEA) by Direct Plating (CFU/mL) and Membrane Filtration (CFU/100mL)

				Direct Plating										Membrane Filtration			
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQHC (36˚C)	Log Avg. AQHC (36˚C)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C)	Avg. YEA (36˚C)	Log Avg. YEA (36˚C)	Avg. AQHC (22˚C)	Log Avg. AQHC (22˚C)	Avg. YEA (22˚C)	Log Avg. YEA (22˚C)	Avg. AQHC (36˚C) (SMEWW)	Log Avg. AQHC (36˚C) (SMEWW)	Avg. PCA (36˚C)	Log Avg. PCA (36˚C) (SMEWW)
	2	Voss Sparkling	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
Natural	2	Voss Sparkling	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Voss Sparkling	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	1	Voss Sparkling	Low	47	1.6668	45	1.6450	54	1.7324	54	1.7312	49	1.6902	59	1.7699	51	1.7031
	1	Voss Sparkling	High	126	2.0985	115	2.0604	117	2.0666	115	2.0586	111	2.0449	128	2.1051	134	2.1270
	2	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Voss Sparkling	Low	25	1.3869	29	1.4621	31	1.4842	28	1.4447	27	1.4232	47	1.6712	43	1.6316
	2	Voss Sparkling	High	59	1.7664	65	1.8116	64	1.8049	58	1.7593	55	1.7359	99	1.9933	104	2.0169
	1	Ty Nant	10^0	164	2.2143	152	2.1817	172	2.2331	166	2.2186	157	2.1950	TNTC	NA	TNTC	NA
Natural	1	Ty Nant	10^-1	20	1.2899	15	1.1548	17	1.2304	19	1.2733	18	1.2546	TNTC	NA	TNTC	NA
	1	Ty Nant	10^-2	3	0.3891	2	0.1505	2	0.3010	2	0.3010	3	0.3891	19	1.2657	17	1.2274
	2	Ty Nant	10^0	37	1.5668	32	1.5051	41	1.6095	41	1.6127	44	1.6378	TNTC	NA	TNTC	NA
Natural	2	Ty Nant	10^-1	5	0.6505	5	0.6276	6	0.7236	5	0.6505	4	0.6021	28	1.4387	26	1.4098
	2	Ty Nant	10^-2	0	0.0000	1	0.0000	0	0.0000	0	0.0000	0	0.0000	4	0.5396	4	0.5396
	1	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	1	Ty Nant	Low	63	1.7927	54	1.7297	50	1.6986	54	1.7260	60	1.7745	57	1.7559	56	1.7434
	1	Ty Nant	High	122	2.0843	107	2.0272	106	2.0234	113	2.0525	107	2.0263	99	1.9933	108	2.0333
	2	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
P. aeruginosa	2	Ty Nant	Low	22	1.3295	26	1.4098	31	1.4842	29	1.4542	31	1.4842	45	1.6515	49	1.6855
	2	Ty Nant	High	61	1.7800	62	1.7885	55	1.7392	59	1.7699	55	1.7359	70	1.8444	66	1.8141
	1	Gerolsteiner	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
Natural	1	Gerolsteiner	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Gerolsteiner	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Gerolsteiner	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
Natural	2	Gerolsteiner	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Gerolsteiner	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Gerolsteiner	Low	44	1.6417	41	1.6417	44	1.6074	42	1.6382	48	1.6155	44	1.6406	52	1.7108
	1	Gerolsteiner	High	90	1.9540	78	1.9540	83	1.8921	94	1.9188	82	1.9729	100	1.9997	96	1.9797
	2	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. faecium	2	Gerolsteiner	Low	61	1.7800	55	1.7800	55	1.7355	56	1.7392	53	1.7421	46	1.6611	52	1.7108
	2	Gerolsteiner	High	110	2.0394	101	2.0394	108	2.0041	104	2.0314	104	2.0145	126	2.1004	110	2.0394
	1	Apollinaris	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
Natural	1	Apollinaris	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Apollinaris	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-

Table 2 (continued): Results for AQHC vs. SMEWW (PCA) and ISO (YEA) by Direct Plating (CFU/mL) and Membrane Filtration (CFU/100mL)

				Direct Plating										Membrane Filtration			
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQHC (36°C)	Log Avg. AQHC (36°C)	Avg. PCA (36°C)	Log Avg. PCA (36°C)	Avg. YEA (36°C)	Log Avg. YEA (36°C)	Avg. AQHC (22°C)	Log Avg. AQHC (22°C)	Avg. YEA (22°C)	Log Avg. YEA (22°C)	Avg. AQHC (36°C) (SMEWW)	Log Avg. AQHC (36°C) (SMEWW)	Avg. PCA (36°C)	Log Avg. PCA (36°C) (SMEWW)
Natural	2	Apollinaris	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Apollinaris	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Apollinaris	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
E. faecium	1	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	1	Apollinaris	Low	49	1.6879	48	1.6812	55	1.7342	44	1.6430	53	1.7240	58	1.7593	57	1.7519
	1	Apollinaris	High	120	2.0780	116	2.0643	119	2.0740	112	2.0472	114	2.0549	116	2.0637	125	2.0951
P. aeruginosa	2	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	2	Apollinaris	Low	27	1.4287	24	1.3662	26	1.3920	22	1.3424	27	1.4287	33	1.5085	23	1.3495
	2	Apollinaris	High	69	1.8354	62	1.7887	64	1.8017	62	1.7887	63	1.7927	74	1.8658	82	1.9108
Natural	1	Perrier	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Perrier	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	1	Perrier	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
Natural	2	Perrier	10^0	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Perrier	10^-1	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
	2	Perrier	10^-2	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	NT	-	NT	-
E. coli	1	Perrier	Uninoculated	0	0	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	1	Perrier	Low	47	47	49	1.6855	43	1.6305	49	1.6869	42	1.6232	46	1.6574	47	1.6668
	1	Perrier	High	90	90	82	1.9137	90	1.9542	85	1.9287	83	1.9190	79	1.8944	73	1.8630
P. aeruginosa	2	Perrier	Uninoculated	0	0	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000
	2	Perrier	Low	30	30	33	1.5106	22	1.3295	26	1.4024	26	1.4058	35	1.5322	39	1.5898
	2	Perrier	High	64	64	74	1.8658	61	1.7851	55	1.7355	56	1.7479	86	1.9319	83	1.9186

Table 3: Results of AQCC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQCC* (SMEWW)	Log Avg. AQCC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. AQCC * (ISO)	Log Avg. AQCC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Dasani	Low	33	1.0385	39	1.5851	40	1.3164	43	1.6276
	1	Dasani	High	86	1.2027	78	1.8918	77	1.4082	82	1.9130
	2	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Dasani	Low	24	0.7953	22	1.3383	24	0.8593	20	1.2864
	2	Dasani	High	48	0.9089	55	1.7342	54	1.3415	45	1.6522
	1	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Nestle Purelife	Low	19	1.2593	16	1.1846	18	1.2414	22	1.3351
	1	Nestle Purelife	High	55	1.7349	52	1.7118	51	1.7016	47	1.6668
	2	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Nestle Purelife	Low	40	1.2976	45	1.6493	44	1.0308	45	1.6522
	2	Nestle Purelife	High	76	1.5154	83	1.9122	73	1.2661	79	1.8975
	1	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Aquafina	Low	16	0.7279	11	1.0167	16	0.6558	13	1.0668
	1	Aquafina	High	58	1.3958	50	1.6986	51	0.9956	56	1.7434
	2	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Aquafina	Low	20	1.0487	23	1.3469	13	0.7821	18	1.2492
	2	Aquafina	High	60	1.1585	53	1.7192	68	1.3700	62	1.7915
	1	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Ice Mountain	Low	21	0.8866	24	1.3706	22	0.9283	26	1.4024
	1	Ice Mountain	High	61	1.2829	64	1.8049	58	1.5377	56	1.7465
	2	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Ice Mountain	Low	41	1.2789	45	1.6470	48	1.6755	36	1.5467
	2	Ice Mountain	High	82	1.9110	84	1.9182	90	1.9507	95	1.9751
	1	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Kroger Treated	Low	51	1.4385	45	1.6515	46	1.6602	51	1.7031
	1	Kroger Treated	High	86	1.3936	82	1.9105	84	1.1609	93	1.9679
	2	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Kroger Treated	Low	26	0.9372	30	1.4515	31	0.9169	26	1.4137
	2	Kroger Treated	High	67	1.8256	62	1.7910	64	1.8017	58	1.7634
	1	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Trauth Treated	Low	27	1.0372	27	1.4169	16	1.1963	13	1.1021
	1	Trauth Treated	High	62	1.2838	57	1.7553	52	1.0175	47	1.6657
	2	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Trauth Treated	Low	21	1.0059	19	1.2657	26	1.1078	34	1.5238
	2	Trauth Treated	High	70	1.3613	65	1.8080	54	1.2068	69	1.8354

*Sum of Typical and Atypical colonies

Table 3 (continued): Results of AQCC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQCC* (SMEWW)	Log Avg. AQCC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. AQCC * (ISO)	Log Avg. AQCC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Evian	Low	31	1.1405	30	1.4749	26	0.9234	25	1.3869
	1	Evian	High	66	1.1200	61	1.7814	67	1.5149	62	1.7910
	2	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Evian	Low	23	1.3469	26	1.3869	25	1.2124	18	1.2492
	2	Evian	High	49	1.3066	56	1.7441	54	1.7260	58	1.7549
	1	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Jana	Low	22	0.8254	17	1.2274	26	1.1198	23	1.3512
	1	Jana	High	61	1.4454	58	1.7589	60	1.3737	50	1.6982
	2	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Jana	Low	29	1.1453	24	1.3768	24	1.3787	25	1.3817
	2	Jana	High	55	1.3102	54	1.7324	53	1.7223	51	1.7007
	1	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Fiji	Low	18	0.9287	22	1.3295	21	0.8735	16	1.1963
	1	Fiji	High	58	1.3633	54	1.7274	52	1.3639	56	1.7465
	2	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Fiji	Low	50	1.4674	44	1.6362	42	1.3964	46	1.6618
	2	Fiji	High	85	1.4663	85	1.9268	82	1.4691	87	1.9391
	1	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Voss	Low	28	1.1972	26	1.3997	29	1.0644	29	1.4614
	1	Voss	High	65	1.5058	58	1.7589	64	1.8017	59	1.7645
	2	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Voss	Low	44	1.1729	49	1.6857	45	1.6108	48	1.6789
	2	Voss	High	87	1.2563	78	1.8891	89	1.4511	84	1.9211
	1	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Voss Sparkling	Low	32	1.1388	28	1.4460	32	1.0112	28	1.4393
	1	Voss Sparkling	High	53	1.7230	62	1.7877	57	1.7558	56	1.7465
	2	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Voss Sparkling	Low	43	1.1924	47	1.6657	42	1.2990	36	1.5467
	2	Voss Sparkling	High	86	1.5374	80	1.9003	91	1.9588	83	1.9179
	1	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Ty Nant	Low	49	1.6898	48	1.6696	42	1.3197	48	1.6755
	1	Ty Nant	High	85	1.7187	77	1.8834	96	1.5917	90	1.9533
	2	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Ty Nant	Low	34	1.1642	30	1.4769	27	1.2215	23	1.3551
	2	Ty Nant	High	63	1.1674	60	1.7744	66	1.1236	70	1.8419

*Sum of Typical and Atypical colonies

Table 3 (continued): Results of AQCC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQCC* (SMEWW)	Log Avg. AQCC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. AQCC * (ISO)	Log Avg. AQCC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Gerolsteiner	Low	30	0.9827	36	1.5450	23	0.9008	28	1.4447
	1	Gerolsteiner	High	64	1.5642	55	1.7392	63	1.7988	72	1.8540
	2	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Gerolsteiner	Low	53	1.2450	47	1.6672	51	1.0789	51	1.7068
	2	Gerolsteiner	High	88	1.2600	93	1.9683	82	1.9110	87	1.9394
	1	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Apollinaris	Low	27	1.0872	22	1.3295	22	0.9213	26	1.4024
	1	Apollinaris	High	67	1.1841	62	1.7915	58	1.3779	61	1.7839
	2	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Apollinaris	Low	44	1.2530	41	1.6123	46	0.8965	53	1.7223
	2	Apollinaris	High	91	1.5575	84	1.9213	91	1.3535	75	1.8719
	1	Perrier	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Perrier	Low	29	0.9631	30	1.4553	22	1.0328	23	1.3433
	1	Perrier	High	54	1.7305	56	1.7471	67	1.8218	63	1.7949
	2	Perrier	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Perrier	Low	19	0.9793	22	1.3295	28	1.4358	23	1.3512
	2	Perrier	High	56	0.9855	49	1.6901	53	1.7186	54	1.7317

*Sum of Typical and Atypical colonies

Table 4: Results of AQEB vs. Customer Method (CFU/100mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	AQEB Average	Log AQEB Average	VRBG Average	Log VRBG Average
	1	Dasani	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	1	Dasani	Low	8	0.8891	12	1.0603
	1	Dasani	High	58	1.7628	51	1.7031
	2	Dasani	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Dasani	Low	25	1.3869	22	1.3295
	2	Dasani	High	73	1.8619	78	1.8908
	1	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	1	Nestle Purelife	Low	5	0.6901	3	0.4771
	1	Nestle Purelife	High	56	1.7413	62	1.7885
	2	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000
E. coli	2	Nestle Purelife	Low	34	1.5298	39	1.5875
	2	Nestle Purelife	High	100	1.9962	106	2.0248

Table 4 (continued): Results of AQEB vs. Customer Method (CFU/100mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	AQEB Average	Log AQEB Average	VRBG Average	Log VRBG Average
	1	Aquafina	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	1	Aquafina	Low	40	1.5999	34	1.5307
	1	Aquafina	High	95	1.9773	87	1.9370
	2	Aquafina	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	2	Aquafina	Low	13	1.0966	11	1.0106
	2	Aquafina	High	54	1.7317	63	1.7955
	1	Ice Mountain	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Ice Mountain	Low	33	1.5094	24	1.3630
	1	Ice Mountain	High	92	1.9634	85	1.9259
	2	Ice Mountain	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	2	Ice Mountain	Low	6	0.7236	4	0.5000
	2	Ice Mountain	High	64	1.8011	56	1.7465
	1	Kroger Treated	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Kroger Treated	Low	52	1.7101	48	1.6765
	1	Kroger Treated	High	83	1.9179	87	1.9393
	2	Kroger Treated	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	2	Kroger Treated	Low	13	1.0923	11	1.0396
	2	Kroger Treated	High	65	1.8073	55	1.7342
	1	Trauth Treated	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	1	Trauth Treated	Low	10	0.9911	13	1.1021
	1	Trauth Treated	High	53	1.7186	57	1.7507
	2	Trauth Treated	Uninoculated	0	0.0000	0	0.0000
E. coli	2	Trauth Treated	Low	31	1.4856	36	1.5502
	2	Trauth Treated	High	70	1.8444	76	1.8772
	1	Evian	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	1	Evian	Low	4	0.3891	6	0.7526
	1	Evian	High	53	1.7186	57	1.7516
	2	Evian	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Evian	Low	21	1.3095	26	1.4098
	2	Evian	High	77	1.8852	74	1.8655
	1	Jana	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Jana	Low	53	1.7240	53	1.7223
	1	Jana	High	98	1.9874	88	1.9440
	2	Jana	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	2	Jana	Low	7	0.7593	5	0.6901
	2	Jana	High	60	1.7766	53	1.7200

Table 4 (continued): Results of AQEB vs. Customer Method (CFU/100mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	AQEB Average	Log AQEB Average	VRBG Average	Log VRBG Average
	1	Fiji	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Fiji	Low	44	1.6379	41	1.6072
	1	Fiji	High	91	1.9558	81	1.9054
	2	Fiji	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Fiji	Low	28	1.4427	26	1.4150
	2	Fiji	High	98	1.9887	91	1.9584
	1	Voss	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Voss	Low	30	1.4621	25	1.3891
	1	Voss	High	75	1.8686	79	1.8948
	2	Voss	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Voss	Low	22	1.3295	26	1.4024
	2	Voss	High	78	1.8889	69	1.8381
	1	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000
E. coli	1	Voss Sparkling	Low	31	1.4905	34	1.5298
	1	Voss Sparkling	High	73	1.8627	80	1.9019
	2	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Voss Sparkling	Low	29	1.4532	22	1.3406
	2	Voss Sparkling	High	92	1.9634	82	1.9137
	1	Ty Nant	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	1	Ty Nant	Low	24	1.3686	18	1.2546
	1	Ty Nant	High	62	1.7915	69	1.8356
	2	Ty Nant	Uninoculated	0	0.0000	0	0.0000
E. coli	2	Ty Nant	Low	52	1.7093	42	1.6228
	2	Ty Nant	High	99	1.9924	89	1.9487
	1	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	1	Gerolsteiner	Low	12	1.0502	9	0.9225
	1	Gerolsteiner	High	57	1.7516	63	1.7918
	2	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000
E. coli	2	Gerolsteiner	Low	38	1.5737	44	1.6424
	2	Gerolsteiner	High	91	1.9588	89	1.9491
	1	Apollinaris	Uninoculated	0	0.0000	0	0.0000
K. pneumonia	1	Apollinaris	Low	2	0.1505	4	0.6021
	1	Apollinaris	High	68	1.8313	62	1.7885
	2	Apollinaris	Uninoculated	0	0.0000	0	0.0000
E. aerogenes	2	Apollinaris	Low	22	1.3227	28	1.4358
	2	Apollinaris	High	71	1.8491	66	1.8147

Table 4 (continued): Results of AQEB vs. Customer Method (CFU/100mL) by Membrane Filtration

Strain	Lot	Matrix Brand	Inoculum Level	AQEB Average	Log AQEB Average	VRBG Average	Log VRBG Average
K. pneumonia	1	Perrier	Uninoculated	0	0.0000	0	0.0000
	1	Perrier	Low	13	1.1127	14	1.1359
	1	Perrier	High	53	1.7192	61	1.7832
E. aerogenes	2	Perrier	Uninoculated	0	0.0000	0	0.0000
	2	Perrier	Low	22	1.3295	24	1.3768
	2	Perrier	High	82	1.9102	86	1.9311

Table 5: Results of EC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration:

Strain	Lot	Matrix Brand	Inoculum Level	Avg. EC* (SMEWW)	Log Avg. EC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. EC* (ISO)	Log Avg. EC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Dasani	Low	40	1.6334	48	1.6809	33	0.2401	47	0.9358
	1	Dasani	High	82	1.9345	88	1.9417	73	0.2853	82	1.1105
	2	Dasani	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Dasani	Low	30	1.5185	22	1.3406	25	0.2232	34	0.8325
	2	Dasani	High	68	1.8513	62	1.7885	82	0.2911	86	1.1255
	1	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Nestle Purelife	Low	28	1.3010	22	1.3295	23	0.2165	28	0.7601
	1	Nestle Purelife	High	72	1.8195	56	1.7434	75	0.2863	75	1.0879
	2	Nestle Purelife	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Nestle Purelife	Low	45	1.4776	38	1.5792	35	0.2438	26	0.8137
	2	Nestle Purelife	High	82	1.9345	71	1.8473	70	0.2831	78	1.0776
	1	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Aquafina	Low	18	1.3424	13	1.0880	21	0.2092	21	0.6603
	1	Aquafina	High	60	1.8062	53	1.7230	53	0.2680	48	0.9418
	2	Aquafina	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Aquafina	Low	36	1.5051	32	1.4978	30	0.2352	20	0.6928
	2	Aquafina	High	57	1.8129	64	1.8017	82	0.2914	74	1.0517
	1	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Ice Mountain	Low	20	1.2304	20	1.2870	25	0.2232	32	0.8233
	1	Ice Mountain	High	61	1.7559	70	1.8419	63	0.2779	67	1.0315
	2	Ice Mountain	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Ice Mountain	Low	54	1.7403	46	1.6623	40	0.2527	35	0.8742
	2	Ice Mountain	High	90	1.9345	95	1.9749	74	0.2859	83	1.1105

*Sum of Typical and Atypical colonies

Table 5 (continued): Results of EC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration:

Strain	Lot	Matrix Brand	Inoculum Level	Avg. EC* (SMEWW)	Log Avg. EC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. EC* (ISO)	Log Avg. EC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Kroger Treated	Low	44	1.5412	38	1.5709	42	0.2550	53	0.9954
	1	Kroger Treated	High	83	1.8741	77	1.8816	71	0.2842	65	1.0272
	2	Kroger Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Kroger Treated	Low	23	1.4311	17	1.2274	29	0.2307	24	0.7218
	2	Kroger Treated	High	52	1.7559	64	1.8024	64	0.2784	72	1.0594
	1	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Trauth Treated	Low	23	1.4314	27	1.4302	30	0.2341	29	0.7601
	1	Trauth Treated	High	82	1.8976	70	1.8440	69	0.2828	65	1.0517
	2	Trauth Treated	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Trauth Treated	Low	25	1.3424	20	1.3005	29	0.2311	23	0.7829
	2	Trauth Treated	High	79	1.9345	60	1.7766	89	0.2951	83	1.1105
	1	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Evian	Low	26	1.5315	23	1.3512	38	0.2488	36	0.8742
	1	Evian	High	67	1.8808	65	1.8085	83	0.2916	88	1.1255
	2	Evian	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Evian	Low	35	1.5911	26	1.4147	27	0.2272	30	0.8325
	2	Evian	High	75	1.8062	85	1.9265	74	0.2863	86	1.0946
	1	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Jana	Low	25	1.3979	20	1.2864	24	0.2199	31	0.8038
	1	Jana	High	67	1.8751	61	1.7848	76	0.2873	68	1.0704
	2	Jana	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	2	Jana	Low	25	1.3424	31	1.4856	30	0.2343	22	0.7218
	2	Jana	High	63	1.8513	68	1.8292	76	0.2876	78	1.0594
	1	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Fiji	Low	34	1.5563	32	1.5032	27	0.2282	16	0.6928
	1	Fiji	High	80	1.8692	65	1.8085	72	0.2845	79	1.0704
	2	Fiji	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Fiji	Low	36	1.5563	46	1.6618	39	0.2506	37	0.8964
	2	Fiji	High	86	1.9590	83	1.9161	82	0.2913	78	1.0740
	1	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Voss	Low	38	1.6128	32	1.4969	25	0.2224	33	0.8583
	1	Voss	High	63	1.7782	71	1.8509	72	0.2849	83	1.1105
	2	Voss	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Voss	Low	47	1.4311	37	1.2274	48	0.2307	43	0.7218
	2	Voss	High	65	1.7559	80	1.8024	85	0.2784	80	1.0594

*Sum of Typical and Atypical colonies

Table 5 (continued): Results of EC vs. SMEWW (CFU/100mL) and ISO (CFU/250mL) by Membrane Filtration:

Strain	Lot	Matrix Brand	Inoculum Level	Avg. EC* (SMEWW)	Log Avg. EC (SMEWW)	Avg. endo LES (SMEWW)	Log Avg. endo LES (SMEWW)	Avg. EC* (ISO)	Log Avg. EC (ISO)	Avg. Lactose TTC (ISO)	Log Avg. Lactose TTC (ISO)
	1	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Voss Sparkling	Low	35	1.5911	35	1.5680	33	0.2627	28	0.9102
	1	Voss Sparkling	High	74	1.7853	84	1.8993	80	0.2931	71	1.1105
	2	Voss Sparkling	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Voss Sparkling	Low	38	1.5185	36	1.5376	40	0.2401	48	0.8137
	2	Voss Sparkling	High	73	1.8976	56	1.9213	82	0.2902	80	1.0478
	1	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	1	Ty Nant	Low	41	1.5556	44	1.5521	38	0.2528	46	0.9700
	1	Ty Nant	High	83	1.7766	74	1.7413	66	0.2914	80	1.1074
	2	Ty Nant	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Ty Nant	Low	31	1.6628	33	1.6362	15	0.2498	29	0.9233
	2	Ty Nant	High	62	1.9031	72	1.8660	74	0.2804	74	1.0776
	1	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Gerolsteiner	Low	26	1.5441	26	1.5085	22	0.1841	22	0.7829
	1	Gerolsteiner	High	65	1.8261	54	1.8538	73	0.2856	66	1.0811
	2	Gerolsteiner	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Gerolsteiner	Low	41	1.4302	53	1.4024	33	0.2142	25	0.6603
	2	Gerolsteiner	High	83	1.7782	94	1.7305	63	0.2853	53	1.0315
	1	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	1	Apollinaris	Low	20	1.6180	13	1.7240	24	0.2399	22	0.7352
	1	Apollinaris	High	61	1.8692	64	1.9727	81	0.2780	73	0.9954
	2	Apollinaris	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
K. pneumonia	2	Apollinaris	Low	50	1.2041	41	1.0880	46	0.2199	49	0.7601
	2	Apollinaris	High	81	1.7076	76	1.8021	74	0.2904	75	1.0478
	1	Perrier	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. coli	1	Perrier	Low	24	1.6628	30	1.6058	34	0.2602	34	0.9418
	1	Perrier	High	80	1.9294	67	1.8775	79	0.2859	75	1.0946
	2	Perrier	Uninoculated	0	0.0000	0	0.0000	0	0.0000	0	0.0000
E. aerogenes	2	Perrier	Low	24	1.4472	29	1.4769	34	0.2420	40	0.8664
	2	Perrier	High	68	1.8692	63	1.8259	60	0.2892	70	1.0594

*Sum of Typical and Atypical colonies

Table 6: Results of AQYM vs. SMEWW (CRB) and Customer Method (aPDA) by Membrane Filtration (CFU/100mL):

				3 Day Counts (CFU/100mL)								5 Day Counts (CFU/100mL)							
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)
	1	Dasani	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	1	Dasani	Low	21	1.3106	22	1.3406	21	1.3106	22	1.3266	21	1.3106	22	1.3406	22	1.3424	22	1.3266
	1	Dasani	High	66	1.8161	63	1.7952	66	1.8187	62	1.7915	66	1.8161	63	1.7952	67	1.8256	66	1.8162
	2	Dasani	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	2	Dasani	Low	27	1.4265	28	1.4460	30	1.4749	30	1.4647	31	1.4893	30	1.4732	31	1.4814	31	1.4893
	2	Dasani	High	83	1.9183	85	1.9287	77	1.8862	84	1.9204	84	1.9211	85	1.9287	80	1.9002	85	1.9287
	1	Nestle Purelife	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Nestle Purelife	Low	37	1.5603	34	1.5298	36	1.5563	36	1.5536	39	1.5909	37	1.5656	38	1.5740	37	1.5603
	1	Nestle Purelife	High	88	1.9444	82	1.9130	88	1.9427	84	1.9232	92	1.9634	86	1.9314	90	1.9533	86	1.9314
	2	Nestle Purelife	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Nestle Purelife	Low	27	1.4302	28	1.4401	25	1.3869	24	1.3706	27	1.4302	28	1.4401	25	1.3869	25	1.3923
	2	Nestle Purelife	High	59	1.7664	62	1.7887	70	1.8394	64	1.8049	59	1.7703	62	1.7887	72	1.8563	66	1.8171
	1	Aquafina	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Aquafina	Low	42	1.6228	34	1.5267	36	1.5556	35	1.5322	43	1.6276	36	1.5467	38	1.5796	37	1.5603
	1	Aquafina	High	81	1.9080	86	1.9314	81	1.9082	78	1.8915	82	1.9133	88	1.9435	83	1.9186	80	1.9028
	2	Aquafina	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Aquafina	Low	26	1.4058	26	1.4024	24	1.3798	24	1.3686	26	1.4058	26	1.4121	25	1.3979	24	1.3787
	2	Aquafina	High	93	1.9683	91	1.9565	92	1.9613	89	1.9493	94	1.9730	92	1.9614	93	1.9661	89	1.9493
	1	Ice Mountain	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	1	Ice Mountain	Low	28	1.4460	28	1.4358	29	1.4548	30	1.4667	29	1.4542	28	1.4358	29	1.4548	30	1.4749
	1	Ice Mountain	High	84	1.9213	87	1.9393	82	1.9137	84	1.9242	87	1.9364	88	1.9418	83	1.9164	85	1.9268
	2	Ice Mountain	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Ice Mountain	Low	22	1.3323	22	1.3295	21	1.3106	23	1.3512	22	1.3424	22	1.3295	23	1.3521	23	1.3512
	2	Ice Mountain	High	52	1.7153	54	1.7312	56	1.7471	52	1.7108	54	1.7323	54	1.7312	59	1.7708	56	1.7481
	1	Kroger Treated	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Kroger Treated	Low	33	1.5094	33	1.5185	29	1.4558	33	1.5167	35	1.5211	35	1.5439	31	1.4814	33	1.5167
	1	Kroger Treated	High	75	1.8741	78	1.8889	79	1.8968	76	1.8768	77	1.9054	77	1.8859	81	1.9080	81	1.9085
	2	Kroger Treated	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Kroger Treated	Low	25	1.3869	23	1.3613	28	1.4375	24	1.3787	23	1.3965	23	1.3613	28	1.4460	25	1.3884
	2	Kroger Treated	High	76	1.8805	80	1.9025	83	1.9164	78	1.8882	80	1.8859	80	1.9025	84	1.9243	81	1.9084
	1	Trauth Treated	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	1	Trauth Treated	Low	21	1.3177	24	1.3702	22	1.3424	22	1.3420	22	1.3406	25	1.3891	23	1.3521	22	1.3420
	1	Trauth Treated	High	53	1.7240	51	1.7072	55	1.7386	52	1.7147	54	1.7279	52	1.7159	56	1.7471	56	1.7443
	2	Trauth Treated	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	2	Trauth Treated	Low	31	1.4877	32	1.4978	36	1.5536	34	1.5238	37	1.5603	35	1.5434	38	1.5731	34	1.5307
	2	Trauth Treated	High	88	1.9417	81	1.9058	83	1.9188	86	1.9311	90	1.9517	88	1.9440	84	1.9215	86	1.9311

Table 6 (continued): Results of AQYM vs. SMEWW (CRB) and Customer Method (aPDA) by Membrane Filtration (CFU/100mL):

				3 Day Counts (CFU/100mL)								5 Day Counts (CFU/100mL)							
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)
	1	Evian	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	1	Evian	Low	29	1.4621	26	1.4058	27	1.4232	28	1.4375	29	1.4621	27	1.4314	27	1.4232	28	1.4375
	1	Evian	High	69	1.8384	72	1.8572	67	1.8227	65	1.8116	71	1.8481	72	1.8572	67	1.8227	65	1.8116
	2	Evian	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Evian	Low	23	1.3551	24	1.3787	24	1.3802	26	1.4044	25	1.3869	25	1.3884	25	1.3976	26	1.4044
	2	Evian	High	84	1.9204	85	1.9265	82	1.9138	83	1.9188	85	1.9259	85	1.9265	84	1.9242	83	1.9188
	1	Jana	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Jana	Low	32	1.4956	33	1.5153	33	1.5167	32	1.5043	35	1.5374	34	1.5285	34	1.5307	33	1.5167
	1	Jana	High	74	1.8655	82	1.9137	79	1.8944	80	1.9028	81	1.9056	83	1.9190	80	1.9030	81	1.9056
	2	Jana	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Jana	Low	20	1.2961	19	1.2788	23	1.3613	24	1.3787	22	1.3406	20	1.3005	23	1.3613	24	1.3787
	2	Jana	High	73	1.8595	73	1.8601	65	1.8094	72	1.8572	75	1.8719	73	1.8601	72	1.8538	73	1.8601
	1	Fiji	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Fiji	Low	36	1.5548	35	1.5396	34	1.5267	32	1.5043	37	1.5613	39	1.5771	36	1.5481	34	1.5246
	1	Fiji	High	88	1.9417	84	1.9238	88	1.9399	82	1.9137	90	1.9533	86	1.9314	90	1.9533	89	1.9494
	2	Fiji	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Fiji	Low	22	1.3314	23	1.3469	24	1.3787	26	1.4137	22	1.3314	23	1.3580	26	1.4065	26	1.4137
	2	Fiji	High	79	1.8948	75	1.8721	73	1.8632	71	1.8479	79	1.8948	75	1.8721	74	1.8662	72	1.8542
	1	Voss	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	1	Voss	Low	24	1.3686	27	1.4287	26	1.4098	23	1.3469	24	1.3787	27	1.4287	27	1.4287	24	1.3630
	1	Voss	High	82	1.9130	84	1.9213	87	1.9393	82	1.9138	83	1.9158	80	1.9003	87	1.9393	84	1.9217
	2	Voss	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Voss	Low	20	1.2988	20	1.2829	25	1.3884	25	1.3869	20	1.2988	20	1.2829	26	1.4065	25	1.3869
	2	Voss	High	70	1.8444	66	1.8141	68	1.8290	69	1.8354	71	1.8509	68	1.8283	68	1.8323	69	1.8354
	1	Voss Sparkling	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Voss Sparkling	Low	36	1.5561	35	1.5374	35	1.5396	32	1.5049	39	1.5845	37	1.5613	37	1.5668	34	1.5246
	1	Voss Sparkling	High	82	1.9110	84	1.9238	83	1.9163	82	1.9130	84	1.9242	84	1.9213	84	1.9242	85	1.9289
	2	Voss Sparkling	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Voss Sparkling	Low	32	1.4978	33	1.5094	31	1.4795	33	1.5153	32	1.4978	33	1.5094	32	1.4956	33	1.5153
	2	Voss Sparkling	High	89	1.9464	85	1.9259	83	1.9186	80	1.9028	91	1.9589	86	1.9314	84	1.9211	81	1.9054
	1	Ty Nant	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	1	Ty Nant	Low	29	1.4614	24	1.3787	26	1.4065	25	1.3891	30	1.4769	25	1.3884	26	1.4150	26	1.4098
	1	Ty Nant	High	91	1.9558	84	1.9238	87	1.9367	81	1.9080	91	1.9558	84	1.9238	87	1.9367	82	1.9135
	2	Ty Nant	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	2	Ty Nant	Low	24	1.3787	26	1.4137	23	1.3551	23	1.3580	25	1.3976	26	1.4137	25	1.3869	24	1.3686
	2	Ty Nant	High	70	1.8444	72	1.8538	68	1.8325	71	1.8481	70	1.8444	72	1.8538	70	1.8420	71	1.8481

Table 6 (continued): Results of AQYM vs. SMEWW (CRB) and Customer Method (aPDA) by Membrane Filtration (CFU/100mL):

				3 Day Counts (CFU/100mL)								5 Day Counts (CFU/100mL)							
Strain	Lot	Matrix Brand	Inoculum Level	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)	Avg. AQYM (25˚C)	Log Avg. AQYM (25˚C)	Avg. aPDA (25˚C)	Log Avg. aPDA (25˚C)	Avg. AQYM (20˚C)	Log Avg. AQYM (20˚C)	Avg. CRB (20˚C)	Log Avg. CRB (20˚C)
	1	Gerolsteiner	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Penicillium	1	Gerolsteiner	Low	21	1.3202	23	1.3521	26	1.4024	25	1.3976	23	1.3521	23	1.3521	27	1.4213	26	1.4150
	1	Gerolsteiner	High	69	1.8388	71	1.8479	75	1.8719	69	1.8381	69	1.8388	71	1.8479	75	1.8749	71	1.8509
	2	Gerolsteiner	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Gerolsteiner	Low	23	1.3613	25	1.3884	24	1.3768	28	1.4460	24	1.3710	25	1.3884	25	1.3869	28	1.4460
	2	Gerolsteiner	High	81	1.9080	78	1.8920	86	1.9311	91	1.9563	82	1.9135	79	1.8946	87	1.9364	92	1.9637
	1	Apollinaris	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	1	Apollinaris	Low	36	1.5548	36	1.5498	32	1.4969	31	1.4828	37	1.5676	36	1.5556	33	1.5183	32	1.5049
	1	Apollinaris	High	83	1.9186	86	1.9314	88	1.9444	86	1.9344	88	1.9445	86	1.9340	89	1.9468	88	1.9445
	2	Apollinaris	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	2	Apollinaris	Low	26	1.4147	26	1.4098	27	1.4287	23	1.3521	27	1.4225	27	1.4287	29	1.4542	28	1.4387
	2	Apollinaris	High	80	1.9025	83	1.9155	84	1.9235	77	1.8837	81	1.9051	84	1.9204	85	1.9289	79	1.8976
	1	Perrier	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
C. albicans	1	Perrier	Low	26	1.4137	28	1.4375	22	1.3314	24	1.3706	27	1.4302	28	1.4375	24	1.3710	25	1.3817
	1	Perrier	High	91	1.9563	85	1.9259	83	1.9161	85	1.9268	92	1.9613	86	1.9340	85	1.9268	85	1.9268
	2	Perrier	Uninoculated	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Paecilomyces	2	Perrier	Low	35	1.5412	39	1.5851	36	1.5563	34	1.5267	36	1.5481	39	1.5851	38	1.5792	36	1.5481
	2	Perrier	High	91	1.9563	86	1.9340	91	1.9586	94	1.9727	92	1.9611	87	1.9393	92	1.9609	95	1.9751

Table 7: Comparison of the 3M Petrifilm Aqua Plate method & corresponding reference method for the enumeration of bacteria inoculated in bottled water

Bacteria	Comparison	Level	N	MLD	SEM	T	p-value	Repeatability	
								Petrifilm	Reference
Heterotrophics	AQHC Plate to PCA (36°C) (direct)	Uninoc	10	0.16	0.022	0.72	0.488	0.060@	0.100
	AQHC Plate to PCA (36°C) (direct)	Low	30	0.000	0.011	0.02	0.985	0.065	0.055
	AQHC Plate to PCA (36°C) (direct)	High	30	0.001	0.010	0.10	0.917	0.038	0.030
	AQHC Plate to YEA (36°C) (direct)	Uninoc	10	-0.001	0.014	-0.06	0.954	NA	NA
	AQHC Plate to YEA (36°C) (direct)	Low	30	-0.007	0.013	-0.54	0.593	NA	NA
	AQHC Plate to YEA (36°C) (direct)	High	30	0.011	0.006	1.79	0.084	NA	NA
	AQHC Plate to YEA (22°C) (direct)	Uninoc	10	0.029	0.038	0.77	0.463	NA	NA
	AQHC Plate to YEA (22°C) (direct)	Low	30	-0.003	0.008	-0.41	0.688	NA	NA
	AQHC Plate to YEA (22°C) (direct)	High	30	0.006	0.005	1.30	0.202	NA	NA
	AQHC Plate to PCA (36°C) (filtered)	Uninco	9	0.029	0.022	1.35	0.212	0.048	0.063
	AQHC Plate to PCA (36°C) (filtered)	Low	30	-0.002	0.011	-0.21	0.833	0.060	0.053
	AQHC Plate to PCA (36°C) (filtered)	High	30	-0.003	0.006	-0.53	0.603	0.026	0.032
Coliform	AQCC Plate to endo LES (SMEWW)	Low	30	0.010	0.012	0.85	0.403	0.069@	0.096
	AQCC Plate to endo LES (SMEWW)	High	30	0.017	0.007	2.56	0.016*	0.040	0.039
	AQCC Plate to Lactose TTC (ISO)	Low	30	0.010	0.014	0.69	0.495	0.062@	0.094
	AQCC Plate to Lactose TTC (ISO)	High	30	0.004	0.008	0.48	0.638	0.038	0.050
Enterobacteriaceae	AQEB Plate to VRBG	Low	30	-0.005	0.027	-0.20	0.844	0.161	0.107@
	AQEB Plate to VRBG	High	30	0.006	0.008	0.73	0.47	0.048	0.038
Yeast & Mold	AQYM Plate to CRB (20°C) (3 Day)	Low	30	0.002	0.006	0.33	0.745	0.060	0.072
	AQYM Plate to CRB (20°C) (3 Day)	High	30	0.008	0.004	1.93	0.063	0.032	0.031
	AQYM Plate to PDA (25°C) (3 Day)	Low	30	-0.001	0.006	-0.20	0.844	0.058	0.063
	AQYM Plate to PDA (25°C) (3 Day)	High	30	0.001	0.004	0.36	0.723	0.030	0.033
	AQYM Plate to CRB (20°C) (5 Day)	Low	30	0.007	0.005	1.60	0.121	0.041@	0.063
	AQYM Plate to CRB (20°C) (5 Day)	High	30	0.006	0.003	2.03	0.052	0.025	0.024
	AQYM Plate to PDA (25°C) (5 Day)	Low	30	0.004	0.006	0.67	0.506	0.044@	0.063
	AQYM Plate to PDA (25°C) (5 Day)	High	30	0.007	0.003	2.20	0.036*	0.026	0.028

N Number of samples with countable results

MLD Mean log difference count per sample (log 3M Petrifilm Plate – log reference method)

SEM Standard error of the mean log difference

T Calculated t-statistic

p-value Actual significance level of the calculated statistic

Repeatability Closeness of agreement between successive results obtained with the same method on identical test material and under the same conditions and is expressed as a standard deviation

***** Significantly different (p-value<0.05)

@ Significantly better repeatability (p<0.05)