

**NF VALIDATION - Validation of alternative analysis methods
Application to the food industry**

Summary report
according to the standard EN ISO 16140-2:2016

Quantitative method

NEOGEN® Petrifilm® Rapid Coliform Count Plate (RCC)
Coliforms after 14 – 24 h incubation time
(Certificate number: 3M 01/05 - 03/97 A)
Gas producing coliforms after 24 h incubation time
(Certificate number: 3M 01/05 - 03/97 C)

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Preamble

- Protocols of validation:

- EN ISO 16140-1 and EN ISO 16140-2/A1 (2024): Microbiology of the food chain — Method validation
Part 1: Vocabulary.
Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method.
- Requirements regarding comparison and interlaboratory studies for implementation of the standard EN ISO 16140-2 (Version 12).

- Reference method:

- NF ISO 4831 (2006): Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of coliforms - Most probable number technique
- NF ISO 4832 (2006): Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique.

- Application scope:

- All human food products, excluding processed pork products for gas producing coliforms enumeration (24 h incubation time).

- Certification body:

- AFNOR Certification (<https://nf-validation.afnor.org/>).

Definitions

- **Method comparison study**

The method comparison study is the part of the validation process that is performed in the expert laboratory. It consists of four parts:

- A comparative study of the results of the reference method to the results of the alternative method in a variety of different items (naturally and/or artificially) contaminated samples (so-called relative trueness study).
- A comparative study of the results of the reference method to the results of the alternative method in artificially contaminated samples using replicates of a single item per category. The data are analyzed using the accuracy profile (AP) approach (so-called AP study).
- An inclusivity/exclusivity study of the alternative method.

- **Relative trueness study**

The relative trueness study is a comparative study between the results obtained by the reference method and the results of the alternative method.

The relative trueness is the degree of correspondence between the response obtained by the reference method and the response obtained by the alternative method on identical samples.

- **Accuracy profile study**

The accuracy profile study is a comparative study between the results obtained by the reference method and the results of the alternative method.

The accuracy profile is the graphical representation of the capacity of measurement of the quantitative method, obtained by combining acceptability intervals and β -expectation tolerance intervals, both reported to different levels of the reference value.

- **Inclusivity and exclusivity study**

The inclusivity study is a study involving pure target strains to be detected or enumerated by the alternative method.

The exclusivity study is a study involving pure non-target strains, which can be potentially cross-reactive, but are not expected to be detected or enumerated by the alternative method.

- **Interlaboratory study**

The interlaboratory study is a study performed by multiple laboratories testing identical samples at the same time, the results of which are used to estimate alternative-method performance parameters.

The aim of an interlaboratory study is to determine the variability of the results obtained in different laboratories using identical samples.

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Appendices

Appendix A:	Protocol of the alternative method
Appendix B :	Protocol of the reference method
Appendix C:	Artificial contamination
Appendix D:	Raw data: relative trueness study
Appendix E:	Raw data: accuracy profiles
Appendix F:	Summarized results accuracy profiles
Appendix G:	Raw data inclusivity and exclusivity study

1. Introduction

The NEOGEN® Petrifilm® Rapid Coliform Count plate (RCC) method was validated on the 18th March 1997 for the:

- Enumeration of coliforms after 14 h incubation time of the Petrifilm® test (certificate number: 3M 01/05 - 03/97 A)
- Enumeration of coliforms after 24 h incubation time of the Petrifilm® test (certificate number: 3M 01/05 - 03/97 B)
- Enumeration of gas producing coliforms after 24 h incubation time of the Petrifilm® test (certificate number: 3M 01/05 - 03/97 C), excluding processed pork products.

It was decided at the Technical Committee of February 2025 to combine the A+B certificates into a single certificate (A) thus corresponding to an enumeration of coliforms from 14 hours to 24 hours. All raw data are presented in this report to keep history.

Table 1 summarizes the different steps of validation that occurred since the initial validation.

Table 1: Steps of the validation AFNOR certification

Date	Study	Expert Laboratory	Assays	Standards
March 1997	Initial validation	ADRIA Développement	Analyses performed by ADRIA in 1997 Interpretation of data from R.Tech (1996)	/
December 2001	Renewal	ADRIA Développement		/
September 2005	Renewal	ADRIA Développement	Interpretation of data from MCS and ILS	EN ISO 16140 (2003)
November 2008	Renewal	ADRIA Développement	/	/
January 2013	Renewal	ADRIA Développement	Interpretation of data from ILS	ISO 16140-2/A1 (2011)
June 2016	Renewal	ADRIA Développement	/	/
October 2021	Renewal	ADRIA Développement	Additional testing and interpretation	ISO 16140-2 (2016)
February 2025	Renewal	Laboratoire Microsept	/	ISO 16140-2/A1 (2024)

All the results presented in this report were produced during the initial validation tests performed by ADRIA Développement within the framework of the brand NF VALIDATION according to the current requirements.

2. Protocols of the methods

2.1. Alternative method

2.1.1. Principle of the method

The NEOGEN® Petrifilm® Rapid Coliform Count (RCC) Plate is a sample-ready- culture-medium system which contains Violet Red Bile (VRB) nutrients, a cold- water-soluble gelling agent, a pH indicator to detect acid and a tetrazolium indicator that facilitates colony enumeration.

Two different enumerations are possible: total coliforms and gas producing coliforms.

Two incubation temperatures and 2 incubation times are available depending on the products tested:

- 14 h to 24 h $\pm$ 2 at 35°C for all food products except processed pork products and seafood products
- 14 h to 24 h $\pm$ 2 h at 30°C for processed pork products and seafood products. The processed pork products are excluded for the enumeration of gas producing coliforms after 24 h incubation time.

According to the ISO 4832 reference method, the coliforms are defined by their colony size and acid production on VRBL agar. On the NEOGEN® Petrifilm® RCC Plates, the acid producing coliforms are indicated by yellow acid zone, or red colonies with or without gas.

According to the ISO 4831 reference method, coliforms are defined by their ability to grow and produce gas from lactose in selective broth. On the NEOGEN® Petrifilm® RCC Plates, these coliforms appear as red colonies associated with gas.

2.1.2. Protocol of the method

The workflow of the method is set out in Appendix A.

2.1.3. Restrictions

The enumeration of gas producing coliforms at 24 h for processed pork products is excluded from the scope.

2.2. Reference method

The reference methods are:

- NF ISO 4831 (2006) - Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of coliforms - Most probable number technique.
- NF ISO 4832 (2006) Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique

The workflow of the reference method is presented in Appendix B.

2.3. Protocols applied during the initial validation and the renewal study

The incubation times and temperatures applied as well as the enumeration performed are listed in Table 2.

Table 2: Incubation times, temperatures, micro-organisms enumerated

Seafood products	Processed pork products	Other products
13h30 at 30°C =>Total coliforms	13h30 at 30°C => Total coliforms	13h30 at 35°C => Total coliforms
22 h at 30°C => Total coliforms =>Gas producing coliforms	22 h at 30°C => Total coliforms	22 h at 35°C => Total coliforms => Gas producing coliforms

For total coliforms enumeration, the evaluation of the performances was compared to the ISO 4832 reference method; both methods are based on colonies enumeration.

For gas producing coliforms, the evaluation was done in comparison to the ISO 4831 reference method. Note that this method is based on an MPN principle.

3. Initial validation, extension and renewal studies

3.1. Method comparison study

The study was conducted on a variety of samples and strains representative of food products. This is not an exhaustive list of the various matrices included in the application scope. For any remark on the alternative method, you can contact AFNOR Certification by connecting to the Internet page <http://nf-validation.afnor.org/contact-2/>.

3.1.1. Relative trueness study

3.1.1.1. Number and nature of the samples

The data from analyses performed by ADRIA in 1997, 2005 and 2006 as well as the data from analyses performed by R.Tech in 1996 for ground beef, raw milk, eggs, flours, raw vegetables and seafood can be kept for interpretation. These data are provided in Appendix D.

All these samples were naturally contaminated.

Note that the enumerations were performed in duplicate for total coliforms (14 h and 24 h) and according to the AFNOR technical rules (Revision 12). For the renewal study, only one replicate will be kept for interpretation.

The data were interpreted according to the ISO 16140-2/A1 (2024).

Taking into account all the studies, the repartition per tested category and type is provided in Table 3.

Table 3: number and nature of the samples analyzed

Coliforms after 14 h incubation time					
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods
1	Meat products	a	Raw meat	33	33
		b	Processed pork prod.	6	6
		c	RTE, RTRH	9	8
		Total		48	47
2	Dairy products	a	Milk	19	19
		b	Cheeses	12	9
		c	Dairy based desserts	11	6
		Total		42	34
3	Seafood	a	Raw seafood	11	10
		b	Processed	11	8
		c	RTE, RTRH	13	11
		Total		35	29
4	Vegetables	a	Raw	12	12
		b	Processed	7	7
		c	RTE, RTRH	12	10
		Total		31	29
5	Egg products and composite	a	Egg products	20	20
		b	Pastries	8	7
		c	Composite meals	12	9
		Total		40	36
ALL CATEGORIES				196	175

Coliforms after 24 h incubation time					
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods
1	Meat products	a	Raw meat	30	30
		b	Processed pork prod.	6	6
		c	RTE, RTRH	9	9
		Total		45	45
2	Dairy products	a	Milk	21	21
		b	Cheeses	12	9
		c	Dairy based desserts	11	6
		Total		44	36
3	Seafood	a	Raw seafood	11	10
		b	Processed	11	8
		c	RTE, RTRH	13	11
		Total		35	29
4	Vegetables	a	Raw	12	12
		b	Processed	8	8
		c	RTE, RTRH	12	10
		Total		32	30
5	Egg products and composite	a	Egg products	17	17
		b	Pastries	8	7
		c	Composite meals	12	9
		Total		37	33
ALL CATEGORIES				193	173

Gas producing coliforms after 24 h incubation time					
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods
1	Meat products	a	Raw meat	30	30
		b	Processed pork prod.	/	/
		c	RTE, RTRH	10	7
		Total		40	37
2	Dairy products	a	Milk	13	13
		b	Cheeses	10	5
		c	Dairy based desserts	11	5
		Total		34	23
3	Seafood	a	Raw seafood	8	6
		b	Processed	9	5
		c	RTE, RTRH	9	8
		Total		26	19
4	Vegetables	a	Raw	7	7
		b	Processed	5	5
		c	RTE, RTRH	12	6
		Total		24	18
5	Egg products and composite	a	Egg products	10	10
		b	Pastries	7	5
		c	Composite meals	11	6
		Total		28	21
ALL CATEGORIES				152	118

196, 193 and 152 samples were respectively tested for total coliforms (14 h incubation time), total coliforms (24 h incubation time) and gas producing coliforms (24 h incubation time) leading to 175, 173 and 118 exploitable results.

3.1.1.2. Contamination of the samples

All the samples analyzed by ADRIA and R.Tech were naturally contaminated. For the renewal study, artificial contamination was performed using spiking or seeding protocols.

The inoculated strains, the contamination protocols, the injured protocols of the inoculated cells and the injury evaluation are provided in Appendix C. Injury efficiency was evaluated by enumerating the pure culture on selective and non-selective agars.

For total coliforms enumeration with 14h incubation time, on the 175 interpretable results, 136 samples were naturally contaminated, and 39 samples were artificially contaminated.

For total coliforms enumeration with 24h incubation time, on the 173 interpretable results, 133 samples were naturally contaminated, and 40 samples were artificially contaminated.

For total gas producing coliforms enumeration with 24h incubation time, on the 118 interpretable results, 94 samples were naturally contaminated, and 24 samples were artificially contaminated.

3.1.1.3. Results

The raw data are provided in Appendix D.

The samples were analyzed by the reference and the alternative methods in order to have 15 interpretable results per category, and 5 interpretable results per tested type.

The data are classified in three categories (See Table 2):

- Interpretable results with the reference and the alternative methods,
- Results with less than 4 colonies per plate with the reference and/or the alternative method (indicated with “*” in the data) in order to have a more precise result. These results are not included in the calculation.
- Results below or above the quantification limit: according to the ISO 16140-2/A1:2024, if any result (either reference or alternative method) is below the quantification limit, the data should be plotted using a substituted value of 1 log₁₀ units less than the observed value in case of a lower than value. Similarly, any value greater than the upper limit should be amended by adding 1 log unit. These results are not included in the calculations but also appear on the graphs.

Table 4: classification of the data

Coliforms after 14 h incubation time							
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods	Number of samples with less than 4 colonies/plate	Number of samples below or above the quantification limit
1	Meat products	a	Raw meat	33	33	0	0
		b	Processed pork prod.	6	6	0	0
		c	RTE, RTRH	9	8	1	0
		Total		48	47	1	0
2	Dairy products	a	Milk	19	19	0	0
		b	Cheeses	12	9	1	2
		c	Dairy based desserts	11	6	0	5
		Total		42	34	1	7
3	Seafood	a	Raw seafood	11	10	1	0
		b	Processed seafood	11	8	0	3
		c	RTE, RTRH	13	11	0	2
		Total		35	29	1	5
4	Vegetables	a	Raw vegetables	12	12	0	0
		b	Processed vegetables	7	7	0	0
		c	RTE, RTRH	12	10	1	1
		Total		31	29	1	1
6	Egg products and composite	a	Egg products	20	20	0	0
		b	Pastries	8	7	0	1
		c	Composite meals	12	9	1	2
		Total		40	36	1	3
ALL CATEGORIES				196	175	5	16

Coliforms after 24 h incubation time							
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods	Number of samples with less than 4 colonies/plate	Number of samples below or above the quantification limit
1	Meat products	a	Raw meat	30	30	0	0
		b	Processed pork prod.	6	6	0	0
		c	RTE, RTRH	9	9	0	0
		Total		45	45	0	0
2	Dairy products	a	Milk	21	21	0	0
		b	Cheeses	12	9	1	2
		c	Dairy based desserts	11	6	0	5
		Total		44	36	1	7
3	Seafood	a	Raw seafood	11	10	1	0
		b	Processed seafood	11	8	1	2
		c	RTE, RTRH	13	11	0	2
		Total		35	29	2	4
4	Vegetables	a	Raw vegetables	12	12	0	0
		b	Processed vegetables	8	8	0	0
		c	RTE, RTRH	12	10	1	1
		Total		32	30	1	1
6	Egg products and composite	a	Egg products	17	17	0	0
		b	Pastries	8	7	0	1
		c	Composite meals	12	9	1	2
		Total		37	33	1	3
ALL CATEGORIES				193	173	5	15

Gas producing coliforms after 24 h incubation time							
Category		Type		Number of tested samples	Number of samples with interpretable results by both methods	Number of samples with less than 4 colonies/plate	Number of samples below or above the quantification limit
1	Meat products	a	Raw meat	30	30	0	0
		b	RTE, RTRH	10	7	0	3
		Total		40	37	0	3
2	Dairy products	a	Milk	13	13	0	0
		b	Cheeses	10	5	1	4
		c	Dairy based desserts	11	5	0	6
		Total		34	23	1	10
3	Seafood	a	Raw seafood	8	6	2	0
		b	Processed seafood	9	5	1	3
		c	RTE, RTRH	9	8	0	1
		Total		26	19	3	4
4	Vegetables	a	Raw vegetables	7	7	0	0
		b	Processed vegetables	5	5	0	0
		c	RTE, RTRH	12	6	2	4
		Total		24	18	2	4
5	Egg products and composite	a	Egg products	10	10	0	0
		b	Pastries	7	5	0	2
		c	Composite meals	11	6	2	3
		Total		28	21	2	5
ALL CATEGORIES				152	118	8	26

The samples, which were not used in the calculations, are provided in Table 5.

Table 5: samples which were not used in the calculations

Coliforms after 14 h incubation time					
Sample n°	Product	Reference method (log CFU/g)	Alternative method (log CFU/g)	Category	Type
1732	RTRH beef meat	3,78	3,48	1	c
1922	Raw milk cheese	1,48	1,48	2	b
1923	Raw milk cheese	5,08	>4,18	2	b
2236	Organic feta cheese	<1,00	<1,00	2	b
1727	Rice pudding	2,00	<2,00	2	c
1728	Rice pudding	<3,00	<3,00	2	c
1729	Tiramisu	<1,00	1,78	2	c
1730	Tiramisu	2,00	<2,00	2	c
1731	Panna cotta	<3,00	<3,00	2	c
1926	Fish filet	1,60	1,85	3	a
1257	Peeled shrimps	<1,00	<1,00	3	b
1259	Scallops	<1,00	<1,00	3	b
1850	Crumbs of tuna	2,70	<2,00	3	b
1260	Fish RTRH	<1,00	<1,00	3	c
1262	RTRH fish	<1,00	<1,00	3	c
1855	RTE carrot	>4,18	>4,18	4	c
1857	Broccoli purée	2,70	2,30	4	c
1677	Pastry	<1,00	<1,00	5	b
1860	RTRH food	<1,00	<1,00	5	c
1863	RTRH Asian food	1,48	1,00	5	c
4233	RTRH fish product (with purée)	<1,00	1,30	5	c



Result outside of the quantification limits

Results calculated using enumeration lower than 4 CFU/plate

Coliforms after 24 h incubation time					
Sample n°	Product	Reference method (log CFU/g)	Alternative method (log CFU/g)	Category	Type
1922	Raw milk cheese	1,48	2,04	2	b
1923	Raw milk cheese	5,08	>4,18	2	b
2236	Organic feta cheese	<1,00	<1,00	2	b
1727	Rice pudding	2,00	<2,00	2	c
1728	Rice pudding	<3,00	3,30	2	c
1729	Tiramisu	<1,00	1,85	2	c
1730	Tiramisu	2,00	<2,00	2	c
1731	Panna cotta	<3,00	<3,00	2	c
1926	Fish filet	1,60	1,90	3	a
1257	Peeled shrimps	<1,00	<1,00	3	b
1259	Scallops	<1,00	<1,00	3	b
1850	Crumbs of tuna	2,70	2,00	3	b
1260	Fish RTRH	<1,00	<1,00	3	c
1262	RTRH fish	<1,00	<1,00	3	c
1855	RTE carrot	>4,18	>4,18	4	c
1857	Broccoli purée	2,70	2,30	4	c
1677	Pastry	<1,00	<1,00	5	b
1860	RTRH food	<1,00	<1,00	5	c
1863	RTRH Asian food	1,48	1,60	5	c
4233	RTRH fish product (with purée)	<1,00	1,30	5	c

Gas producing coliforms after 24 h incubation time					
Sample n°	Product	Reference method (log CFU/g)	Alternative method (log CFU/g)	Category	Type
1734	RTRH pork meat	<1,49	2,72	1	c
1735	RTRH beef meat	<2,49	3,26	1	c
1737	RTRH lamb meat	>6,04	<5,00	1	c
1922	Raw milk cheese	1,63	1,30	2	b
1923	Raw milk cheese	1,63	>4,18	2	b
2234	Raw milk camembert	>6,04	7,84	2	b
2235	Raw milk camembert	>6,04	7,72	2	b
2236	Organic feta cheese	<0,49	<1,00	2	b
1726	Pastry with cream	>3,04	3,71	2	c
1727	Rice pudding	<2,49	<2,00	2	c
1728	Rice pudding	<3,49	3,30	2	c
1730	Tiramisu	<2,49	<2,00	2	c
1731	Panna cotta	<2,49	<3,00	2	c
2538	White cheese	>5,04	4,81	2	c
1924	Fish filet	0,86	1,60	3	a
1926	Fish filet	0,56	1,00	3	a
1850	Crumbs of tuna	2,36	2,00	3	b
1853	Peeled raw gambas	1,56	<2,00	3	b
1854	Seafood cocktail	<2,49	<3,00	3	b
1925	Processed salmon	0,96	<1,00	3	b
187	Codfish brandade	>5,04	5,04	3	c
1855	RTE carrot	3,38	>4,18	4	c
1856	RTE radish	2,88	2,60	4	c
1857	Broccoli purée	1,56	2,30	4	c
1858	Asparagus purée	<1,49	3,48	4	c
1859	Split peas purée	<-0,51	3,70	4	c
3138	Broccolis purée	>5,04	6,00	4	c
1677	Pastry	<-0,51	<1,00	5	b
2541	Yarrow pastry	>4,04	4,11	5	b
1860	RTRH food	<-0,51	<1,00	5	c
1863	RTRH Asian food	1,63	1,60	5	c
3139	Lasagne with bolognese	<2,5	6,04	5	c
3140	RTRH beef meat	<1,50	4,95	5	c
4233	RTRH fish product (with purée)	0,96	1,30	5	c

3.1.1.4. Statistical interpretation

The obtained data were analyzed using the scatter plot. The graphs are provided with the line of identity ($y = x$).

Figures 1 to 5, 7 to 11 and 13 to 17 show the data plotted for each individual category.

Figures 6, 12 and 18 show the data plotted for all the products.

Figure 1: data plotted for meat products

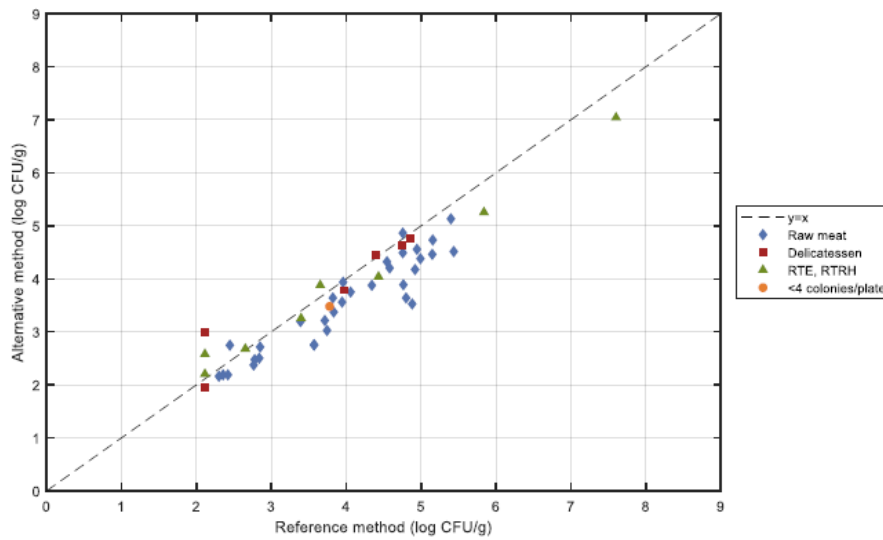


Figure 2: data plotted for dairy products

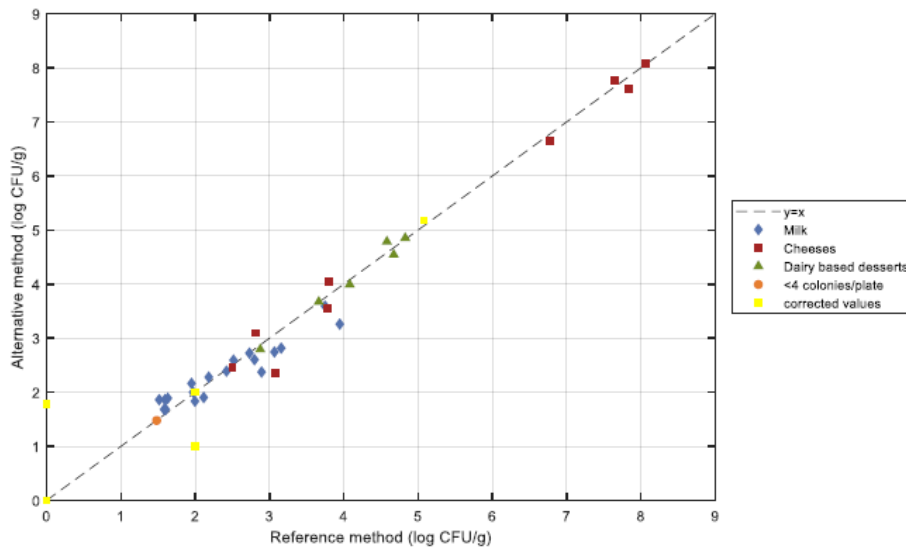


Figure 3: data plotted for seafood

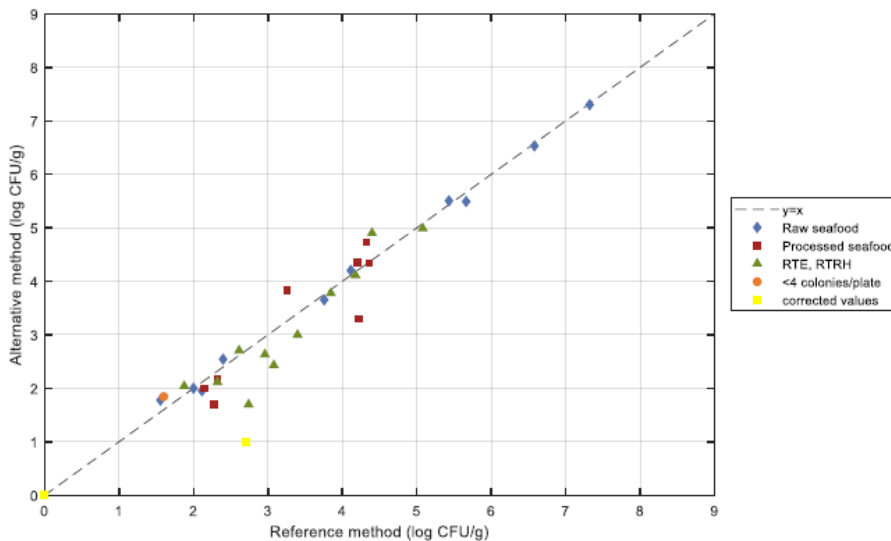


Figure 4: data plotted for vegetables

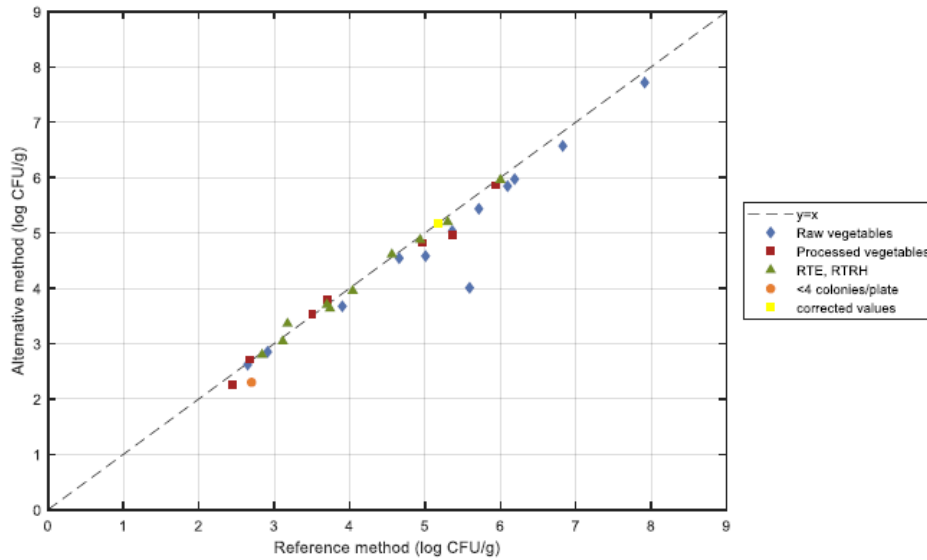


Figure 5: data plotted for egg products and composite

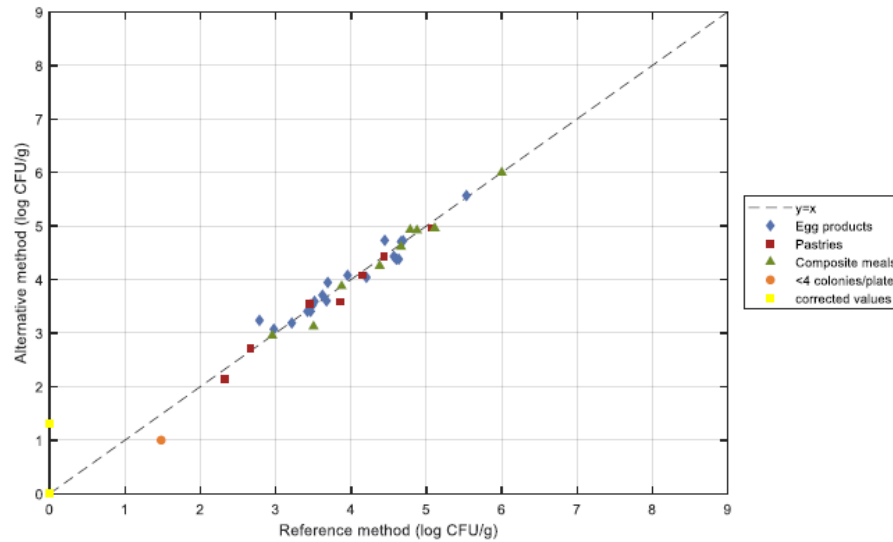


Figure 6: data plotted for all products

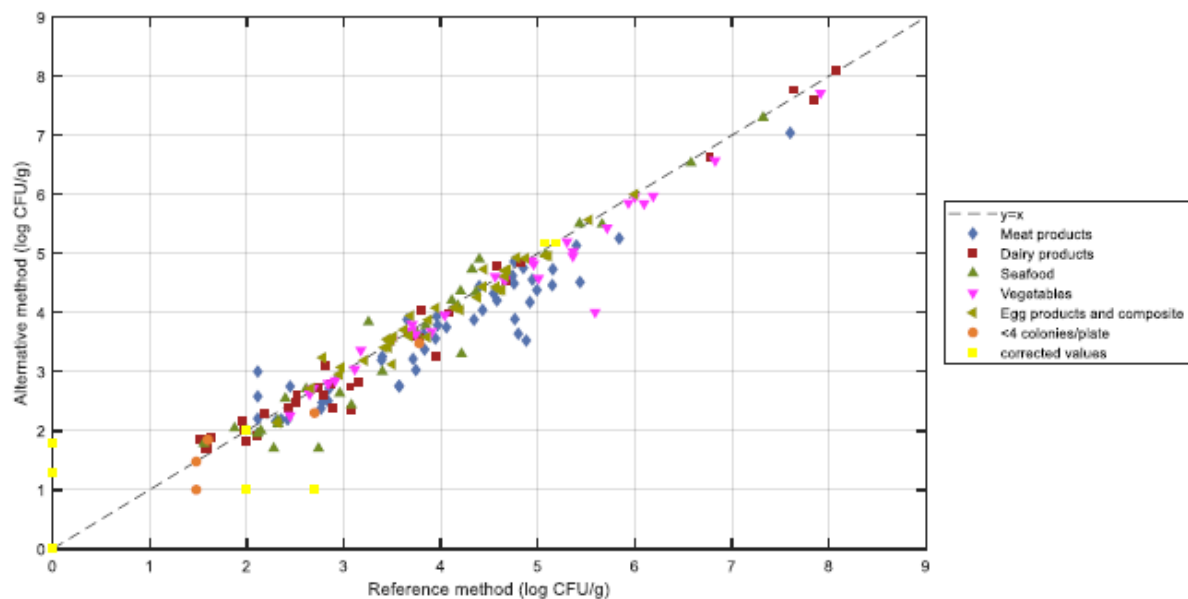


Figure 7: data plotted for meat products

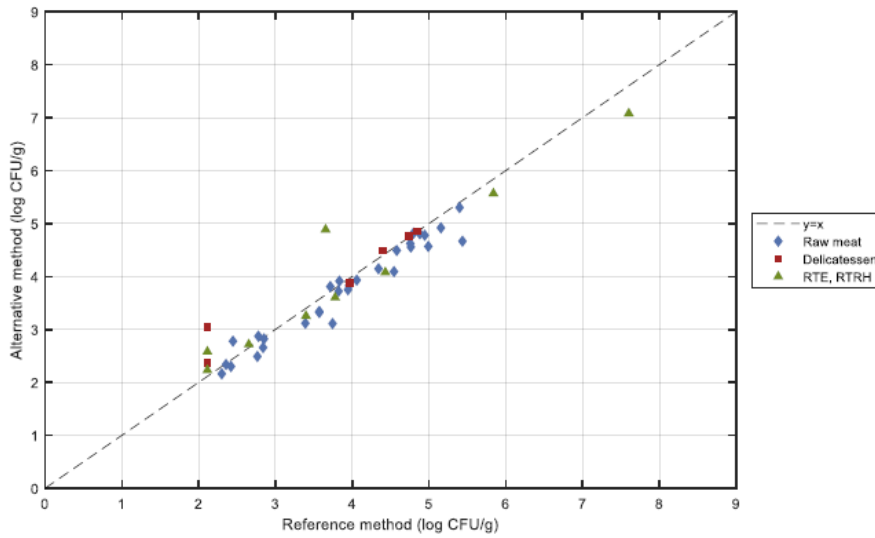


Figure 8: data plotted for dairy products

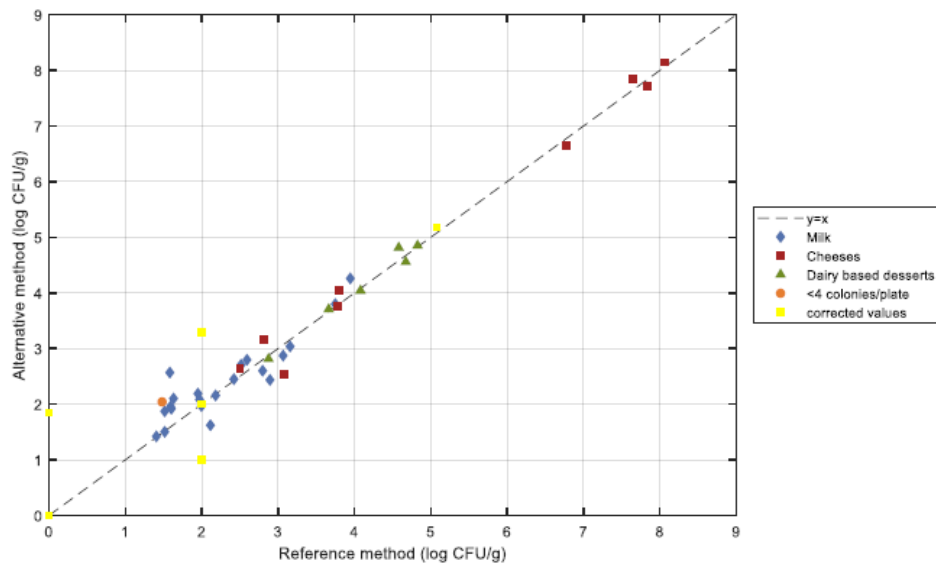


Figure 9: data plotted for seafood

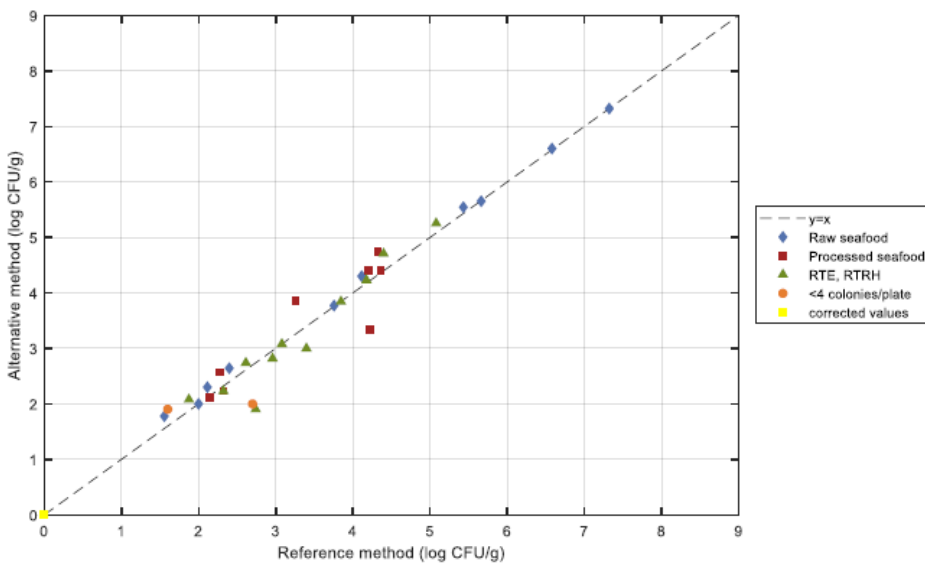


Figure 10: data plotted for vegetables

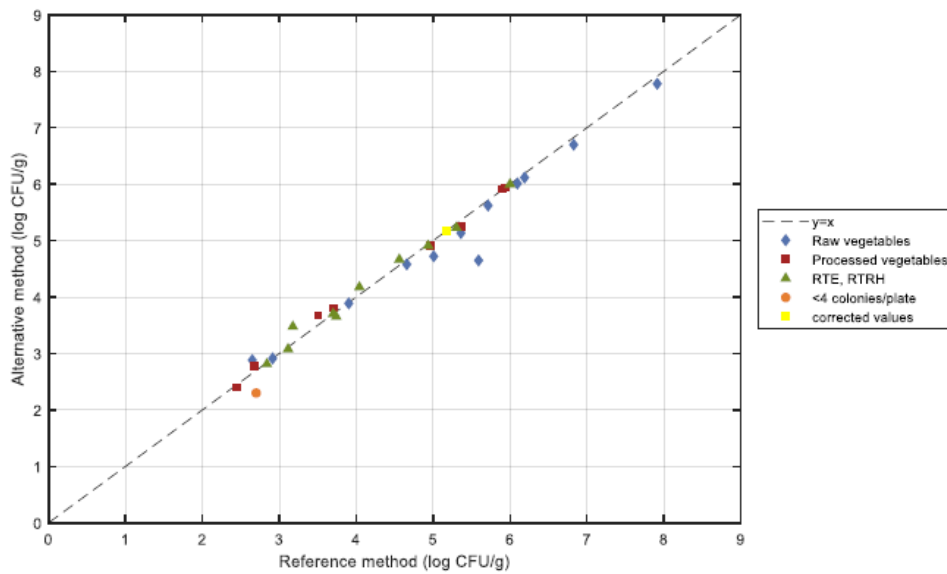


Figure 11: data plotted for egg products and composite

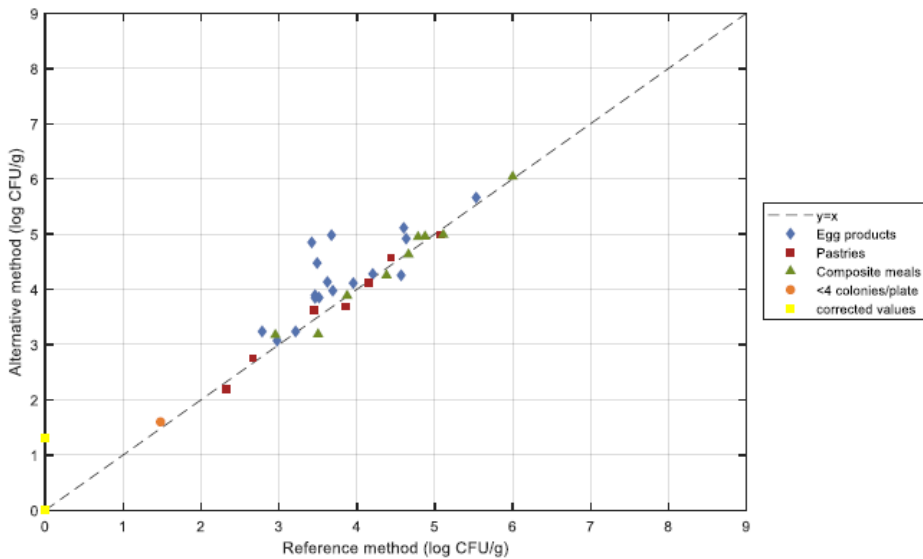


Figure 12: data plotted for all products

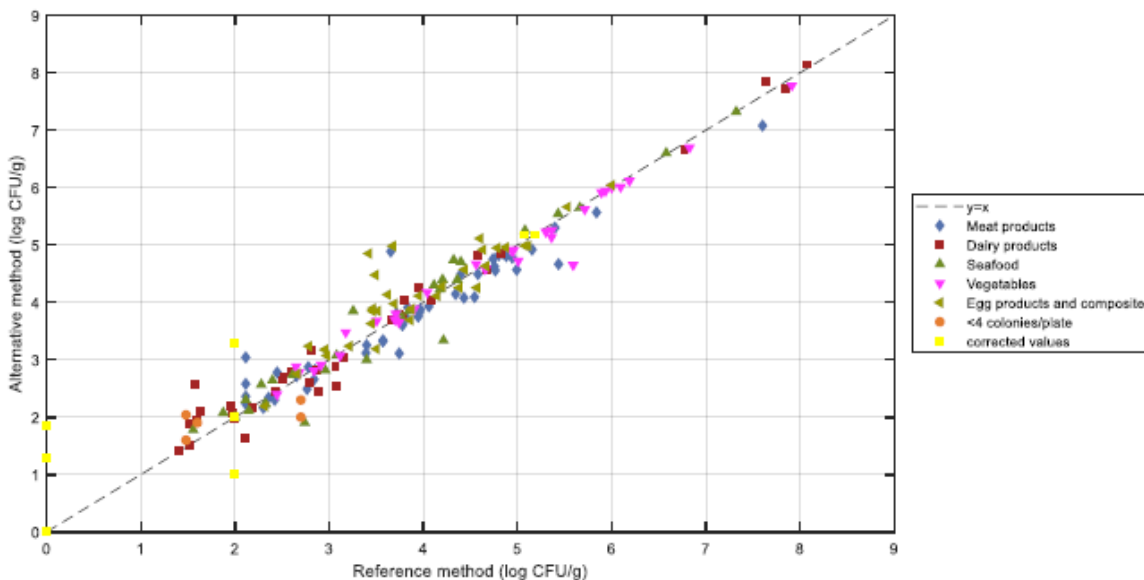


Figure 13: data plotted for meat products

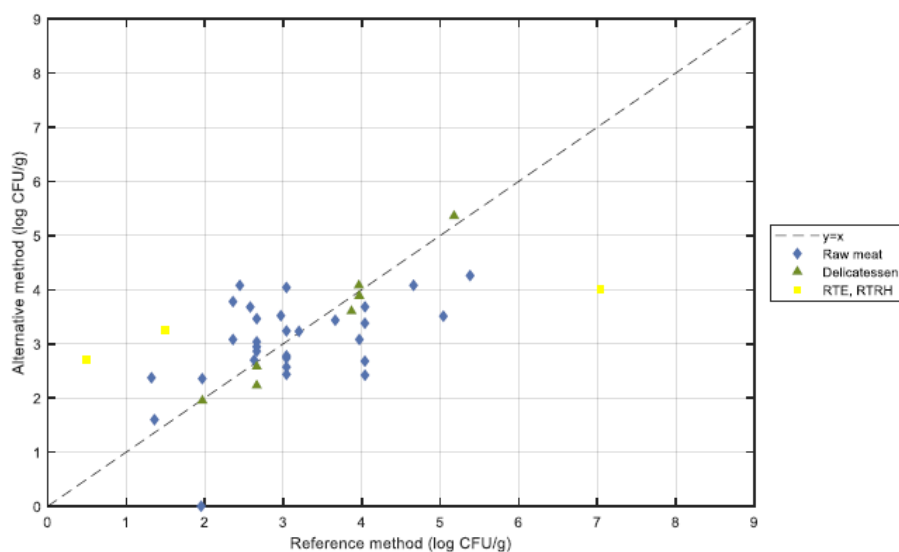


Figure 14: data plotted for dairy products

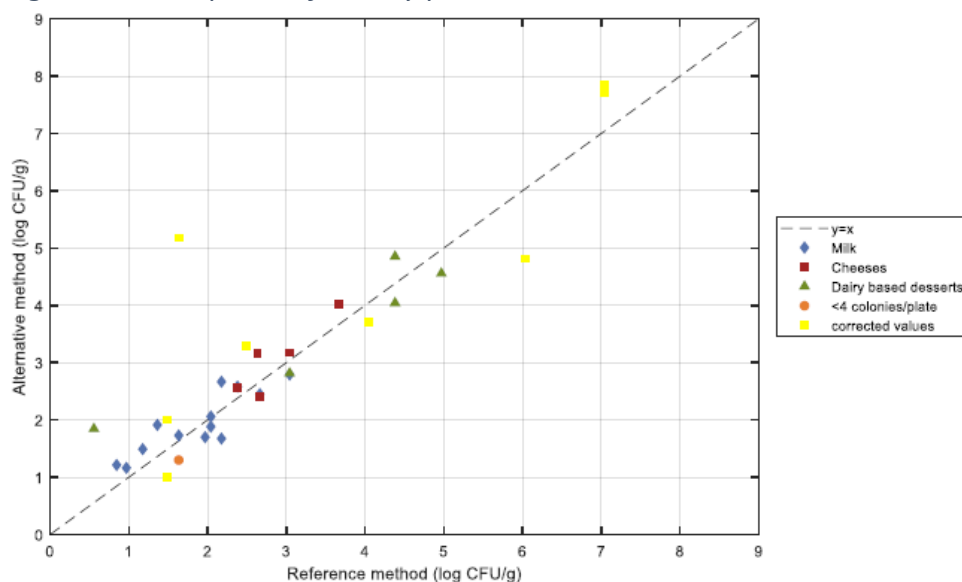


Figure 15: data plotted for seafood

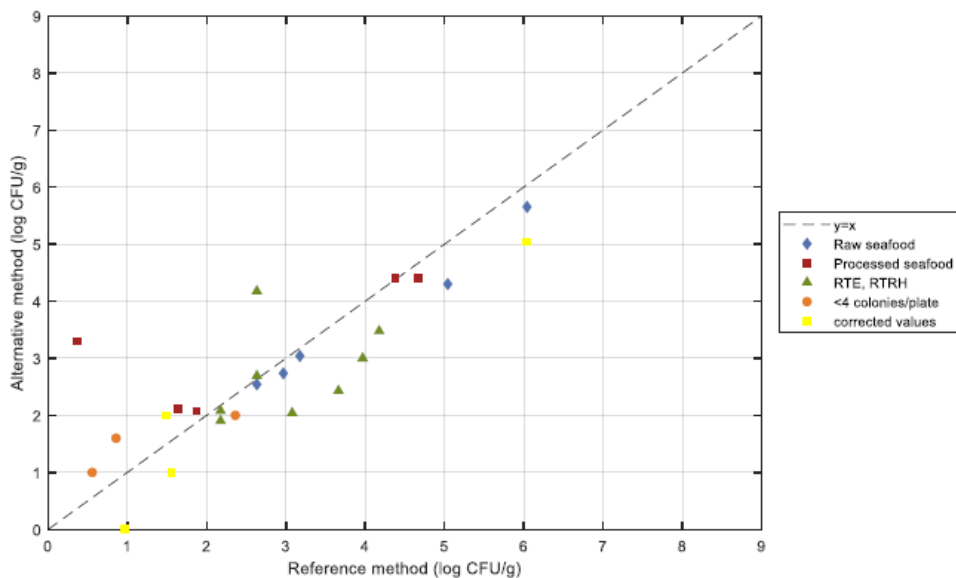


Figure 16: data plotted for vegetables

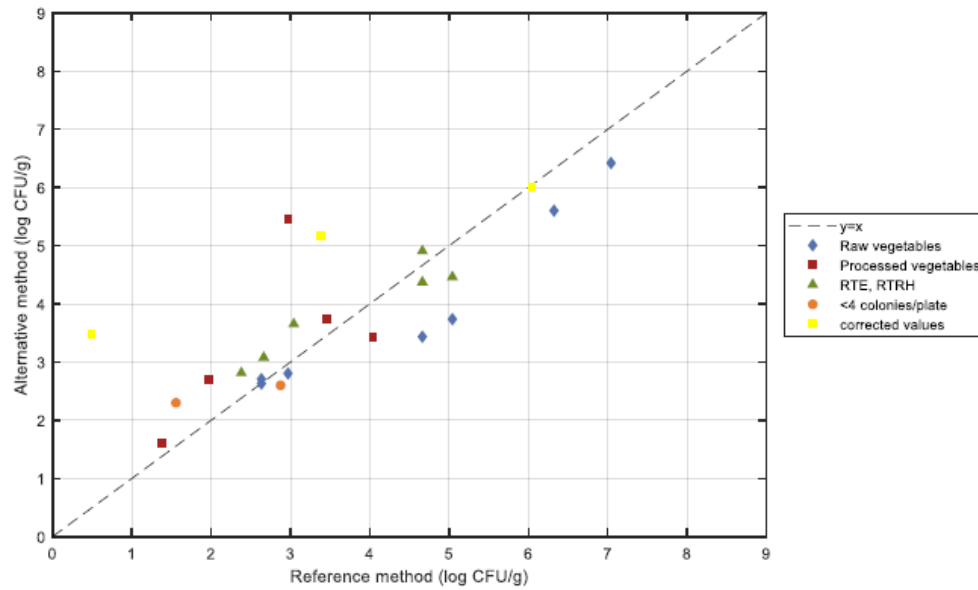


Figure 17: data plotted for egg products and composite

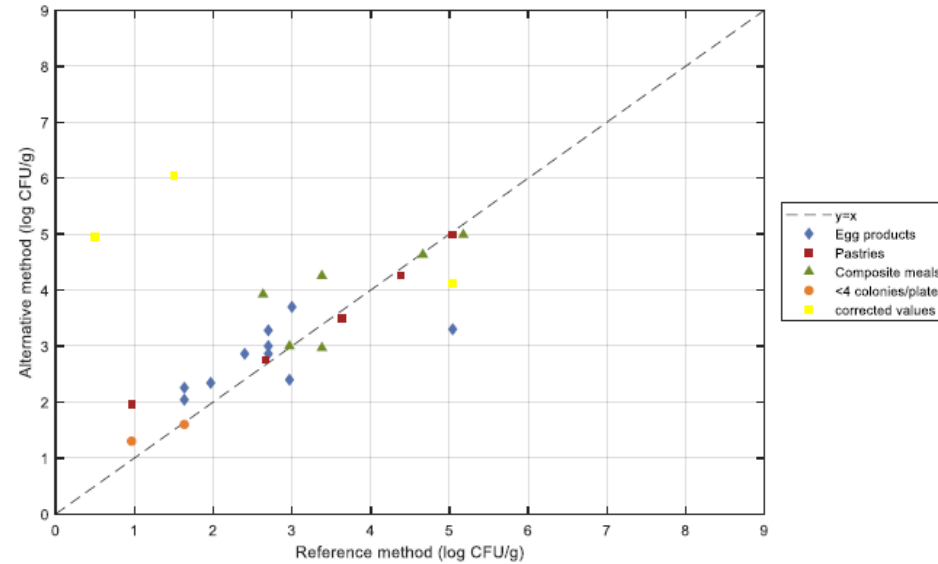
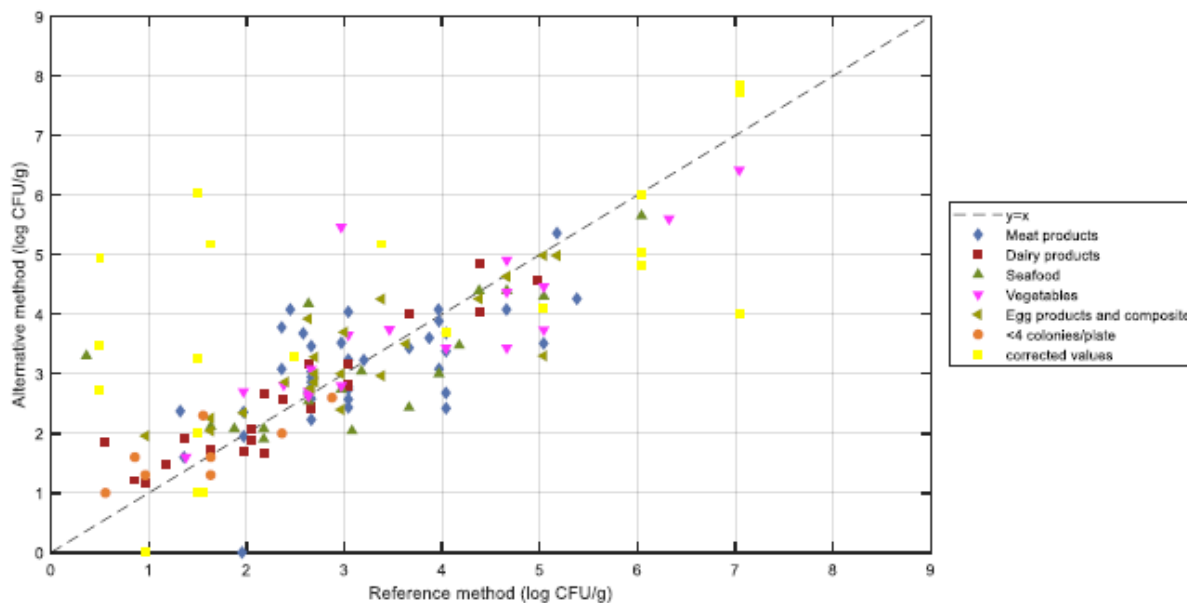


Figure 18: data plotted for all products



The calculated values for average difference (D) (bias) and standard deviation (SD) differences per category are provided in Table 6.

Table 6: calculated values

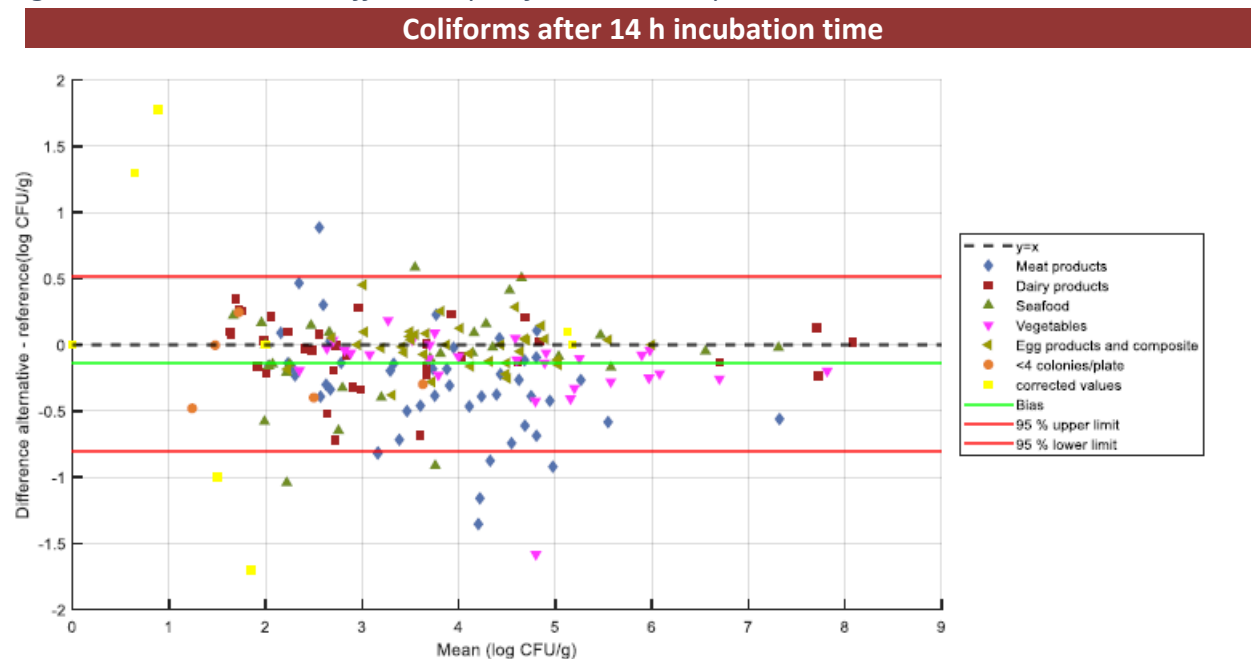
Coliforms after 14 h incubation time						
Category		n	D (bias)	SD	95% lower limit	95% upper limit
1	Meat products	47	-0,32	0,40	-1,14	0,50
2	Dairy products	34	-0,06	0,26	-0,59	0,48
3	Seafood	29	-0,09	0,37	-0,86	0,67
4	Vegetables	29	-0,17	0,31	-0,81	0,47
5	Egg products and composite	36	-0,01	0,16	-0,34	0,32
All categories		175	-0,14	0,33	-0,80	0,52

Coliforms after 24 h incubation time						
Category		n	D (bias)	SD	95% lower limit	95% upper limit
1	Meat products	45	-0,07	0,34	-0,77	0,62
2	Dairy products	36	0,07	0,28	-0,52	0,65
3	Seafood	29	0,03	0,31	-0,61	0,67
4	Vegetables	30	-0,04	0,21	-0,48	0,39
5	Egg products and composite	33	0,21	0,40	-0,61	1,03
All categories		173	0,03	0,33	-0,62	0,69

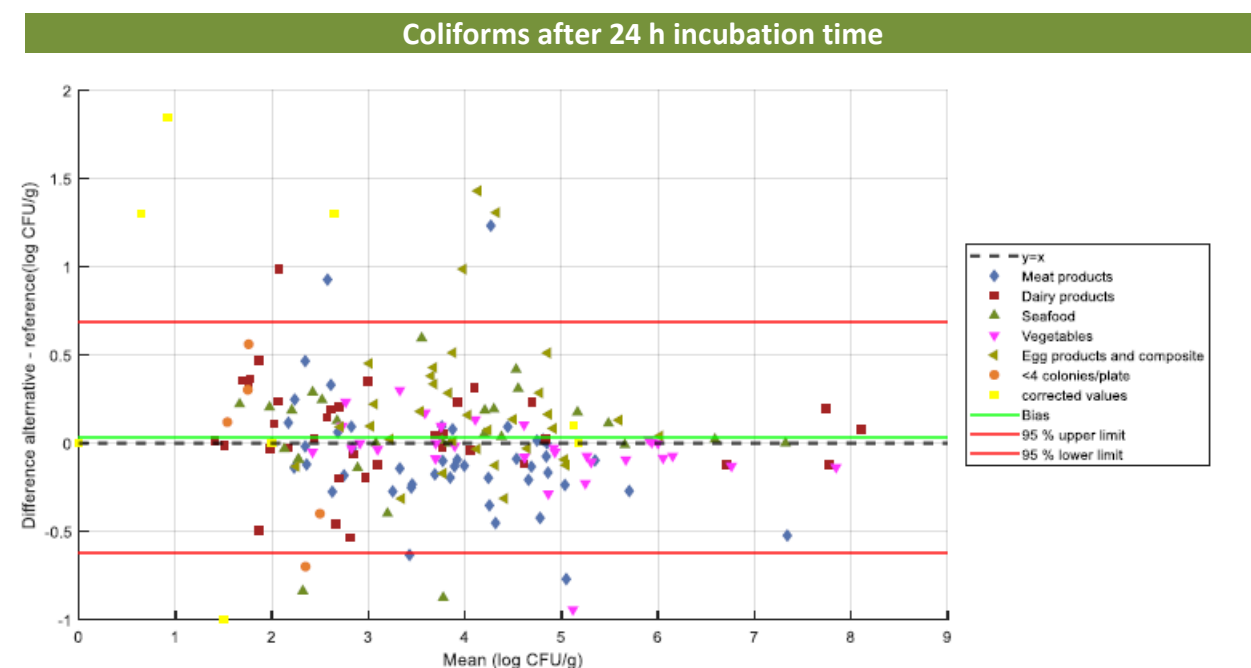
Gas producing coliforms after 24 h incubation time						
Category		n	D (bias)	SD	95% lower limit	95% upper limit
1	Meat products	37	-0,07	0,83	-1,76	1,63
2	Dairy products	23	0,11	0,41	-0,77	0,99
3	Seafood	19	0,04	1,03	-2,18	2,27
4	Vegetables	18	0,00	0,86	-1,87	1,87
5	Egg products and composite	21	0,17	0,64	-1,20	1,54
All categories		118	0,04	0,77	-1,49	1,57

The Bland-Altman difference plot for all the samples is given Figure 19.

Figure 19: Bland-Altman difference plot for all the samples.

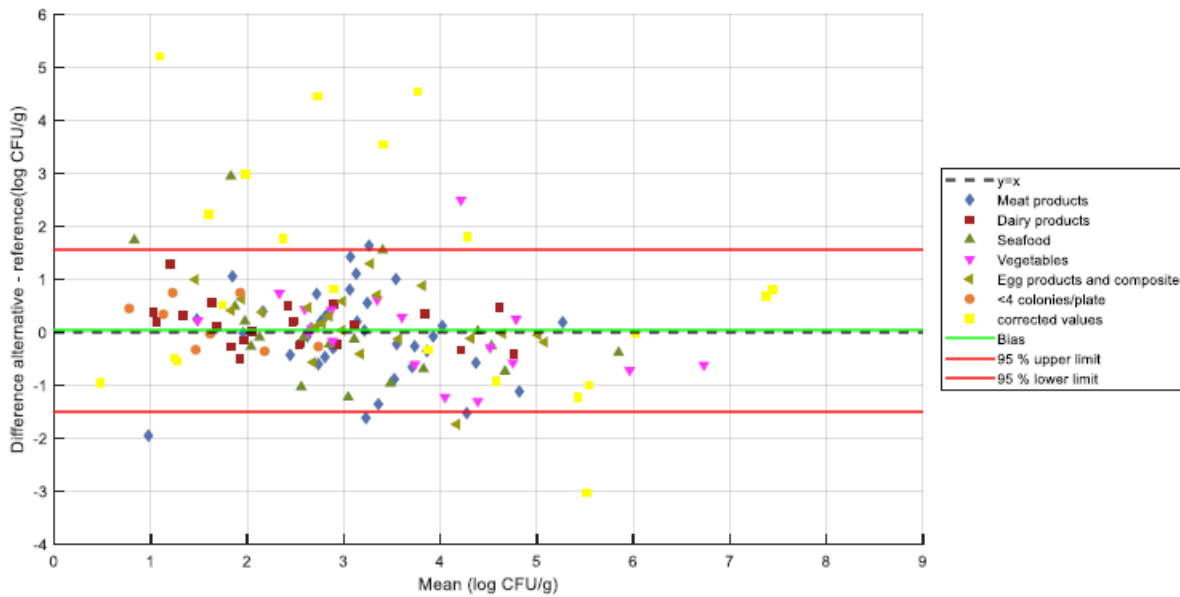


Average differences vary from -0.32 log (meat) to -0.01 log (egg products and composite).



Average differences vary from -0.07 log (meat) to 0.21 log (egg products and composite).

Gas producing coliforms after 24 h incubation time



Average differences vary from -0.07 log (meat) to 0.17 log (egg products and composite).

Samples for which the difference between the result observed with the reference and the alternative methods is above or lower than the limits are listed in Table 7.

Table 7: analysis of the data out of the confidence limits

Values in green: differences in favor of the alternative method

Values in red: differences in favor of the reference method

Values in black: equivalent enumeration observed with both methods

Values in yellow: corrected value

Values in orange: results calculated using enumeration lower than 4 CFU/plate

Coliforms after 14 h incubation time										
Classification of the data	Category	Type	N° Sample	Product	Reference method	Alternative method	Values before correction (Reference or/and alternative method)	Mean	Difference	LCL/ UCL
Interpretable results by both method	1	a	90	Chicken meat	5,44	4,51	/	4,98	-0,92	- 0,80 / 0,52
	1	a	1	Ground beef meat	3,57	2,75	/	3,16	-0,82	
	1	a	13	Ground beef meat	4,80	3,64	/	4,22	-1,16	
	1	a	27	Ground beef meat	3,57	2,76	/	3,16	-0,81	
	1	a	28	Ground beef meat	4,88	3,53	/	4,20	-1,35	
	1	a	29	Ground beef meat	4,76	3,89	/	4,33	-0,88	
	1	b	2531	Ham	2,11	3,00	/	2,56	0,89	
	3	b	56	Seafood cocktail	4,21	3,30	/	3,76	-0,91	
	3	b	1853	Peeled raw gambas	3,26	3,84	/	3,55	0,58	
	3	c	1261	Squid	2,74	1,70	/	2,22	-1,04	
< or > quantification limit	4	a	14	Raw vegetables	5,59	4,01	/	4,80	-1,58	
	2	c	1727	Rice pudding	2,00	1,00	2.00	1,50	-1,00	
	2	c	1729	Tiramisu	0,00	1,78	1.00	0,89	1,78	
	2	c	1730	Tiramisu	2,00	1,00	2.00	1,50	-1,00	
	3	b	1850	Crums of tuna	2,70	1,00	2.00	1,85	-1,70	
	5	c	4233	RTRH fish product (with purée)	0,00	1,30	1.00	0,65	1,30	

Coliforms after 24 h incubation time										
Classification of the data	Category	Type	N° Sample	Product	Reference method	Alternative method	Values before correction (Reference or/and alternative method)	Mean	Difference	LCL / UCL
Interpretable results by both method	1	a	48	Poultry meat	3,74	3,11	/	3,43	-0,63	-0,62 / 0,69
	1	a	90	Chicken meat	5,44	4,67	/	5,05	-0,77	
	1	b	2531	Ham	2,11	3,04	/	2,58	0,93	
	1	c	1725	RTE chicken meat	3,65	4,89	/	4,27	1,23	
	2	a	11	Raw milk	1,58	2,57	/	2,08	0,99	
	3	b	56	Seafood cocktail	4,21	3,34	/	3,78	-0,88	
	3	c	1261	Squid	2,74	1,90	/	2,32	-0,84	
	4	a	14	Raw vegetables	5,59	4,65	/	5,12	-0,94	
	5	a	8	Egg	3,49	4,48	/	3,98	0,99	
	5	a	26	Egg	3,67	4,98	/	4,33	1,31	
	5	a	29	Egg	3,42	4,85	/	4,14	1,43	
< 4 CFU/plate	3	b	1850	Crumbs of tuna	2,70	2,00	/	2,35	-0,70	
< or > quantification limit	2	c	1727	Rice pudding	2,00	1,00	2.00	1,50	-1,00	
	2	c	1728	Rice pudding	2,00	3,30	3.00	2,65	1,30	
	2	c	1729	Tiramisu	0,00	1,85	1.00	0,92	1,85	
	2	c	1730	Tiramisu	2,00	1,00	2.00	1,50	-1,00	
	5	c	4233	RTRH fish product (with purée)	0,00	1,30	1.00	0,65	1,30	

Gas producing coliforms after 24 h incubation time										
Classification of the data	Category	Type	N° Sample	Product	Reference method	Alternative method	Values before correction (Reference or/and alternative method)	Mean	Difference	LCL / UCL
Interpretable results by both method	1	a	48	Poultry meat	4,04	2,42	/	3,23	-1,62	-1,49 / 1,57
	1	a	48	Carcass veal meat	5,04	3,51	/	4,28	-1,53	
	1	a	36	Ground beef meat	1,95	0,00	/	0,98	-1,95	
	1	a	39	Ground beef meat	2,45	4,08	/	3,26	1,63	
	3	a	1676	Scallops	-0,04	1,70	/	0,83	1,74	
	3	b	56	Seafood cocktail	0,36	3,30	/	1,83	2,94	
	4	b	17	Flour	2,97	5,46	/	4,22	2,49	
	5	a	89	Liquid whole egg	5,04	3,30	/	4,17	-1,74	
< or > quantification limit	1	c	1734	RTRH pork meat	0,49	2,72	1.49	1,60	2,23	
	1	c	1735	RTRH beef meat	1,49	3,26	2.49	2,37	1,77	
	1	c	1737	RTRH lamb meat	7,04	4,00	6.04 / 5.00	5,52	-3,04	
	2	b	1923	Raw milk cheese	1,63	5,18	4.18	3,41	3,55	
	4	c	1855	RTE carrot	3,38	5,18	4.18	4,28	1,80	
	4	c	1858	Asparagus purée	0,49	3,48	1.49	1,98	2,99	
	4	c	1859	Split peas purée	-1,51	3,70	-0.51	1,09	5,21	
	5	c	3139	Lasagne with bolognese	1,50	6,04	2.50	3,77	4,54	
	5	c	3140	RTRH beef meat	0,50	4,95	1.50	2,73	4,45	

3.1.1.5. Discordant results

The samples are classified in three categories (See Table 8).

Table 8: samples outside the CL

Coliforms after 14 h incubation time		
		Number of samples
Interpretable results by both methods	<LCL	9
	>UCL	2
	Total	11
< or > quantification limits	<LCL	3
	>UCL	2
	Total	5
Total <LCL		12
Total >UCL		4
TOTAL		16

For the samples giving interpretable results by both the reference and the alternative methods, higher enumeration is observed for the ISO 4832 method. The differences were mainly observed for the meat category for which 6 values were <LCL and 1 value > LCL. The observed bias for this category is however correct (-0.34 log CFU).

Coliforms after 24 h incubation time		
		Number of samples
Interpretable results by both methods	<LCL	5
	>UCL	6
	Total	11
<4 CFU/plate	<LCL	1
	>UCL	0
	Total	1
< or > quantification limits	<LCL	2
	>UCL	3
	Total	5
Total <LCL		8
Total >UCL		9
TOTAL		17

When the incubation time of the Petrifilm tests is extended to 24 h the number of samples below the LCL is equivalent to the number of samples above the UCL.

Gas producing coliforms after 24 h incubation time		
		Number of samples
Interpretable results by both methods	<LCL	4
	>UCL	4
	Total	8
< or > quantification limits	<LCL	1
	>UCL	8
	Total	9
Total <LCL		5
Total >UCL		12
TOTAL		17

For gas producing coliforms enumeration, the same number of samples giving results below the LCL and above the UCL was observed.

3.1.1.6. Conclusion

The relative trueness study of the alternative method is satisfying for the enumeration of coliforms after 14 h and 24 h incubation time and for enumeration of gas producing coliforms even if a negative bias is observed for the meat category.

The alternative method is reliable when compared to the reference method.

3.1.2. Accuracy profiles

3.1.2.1. Matrices

Five matrices were tested. A minimum of one type per category, and therefore 2 different batches, were selected, using 6 samples per type. 2 samples are contaminated at a low level, 2 at intermediate level, 2 at a high level. For each sample, 5 replicates (5 different test portions) were tested. The tested categories, types, matrix and inoculated strains are provided in Table 9.

Table 9: matrix – strain pairs and inoculation protocols for the accuracy profile study

Category		Type	Matrix	Inoculated strain	Origin	Inoculation level (CFU/g)
1	Meat products	a - Raw meat	Ground beef	<i>Enterobacter cloacae</i> 58	Unknown	300 10 000 100 000
				<i>Enterobacter cloacae</i> 128 ⁽¹⁾	Ground beef	
2	Dairy products	a - Milk	Pasteurized milk	<i>Cronobacter sakazakii</i> Ad1418	Infant formula	
3	Seafood products	a - Raw fish	Raw fish fillet	<i>Escherichia coli</i> Ad228	Fish	
4	Vegetables	a - Raw and frozen	Green peas	<i>Enterobacter intermedium</i> 60	Spinach	
5	Egg products and composites	a - Liquid egg	Pasteurized liquid whole egg	<i>Citrobacter gillenii</i> Ad343	Egg product	

(1) : a second strain was tested as the first strain tested (*Enterobacter cloacae* 58) did not allow to obtain results for gas producing coliforms enumeration using the ISO 4831 method.

3.1.2.2. Results and interpretation

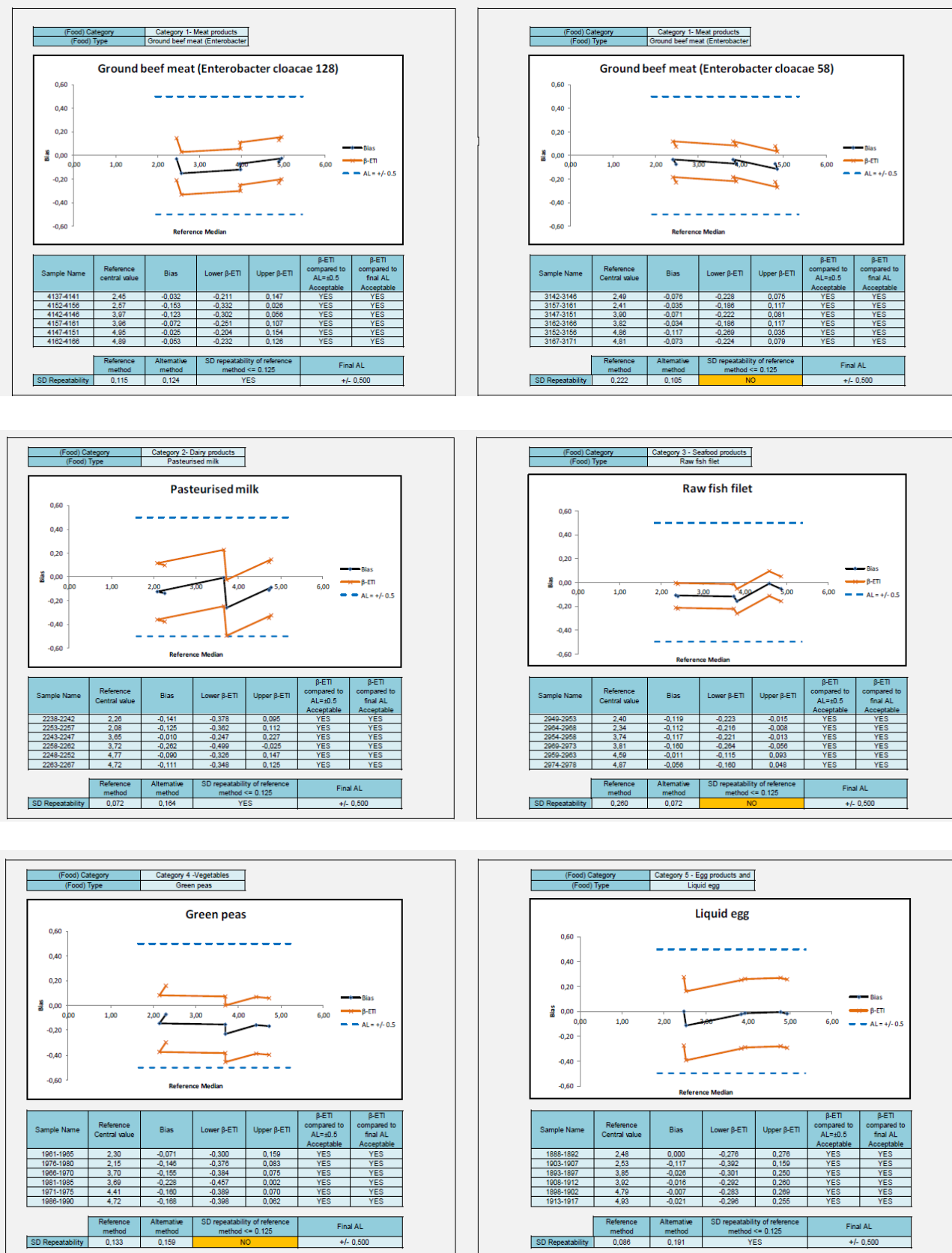
The raw data are provided in Appendix E. The summary tables (in log CFU/g) and calculations are provided in Appendix F. The statistical results and the accuracy profiles are provided Figure 20.

The calculations will be done using the AP Calculation Tool MCS (Clause 6-1-3-3 calculation and interpretation of accuracy profile study) ver. 31-07-2018 available on <http://standards.iso.org/iso/16140>.

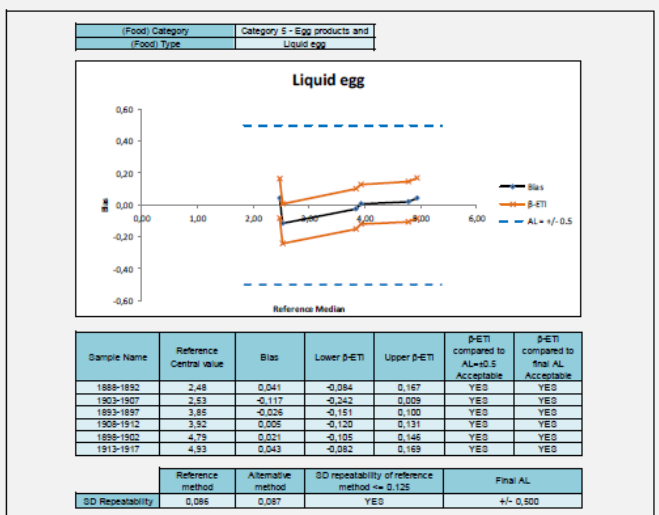
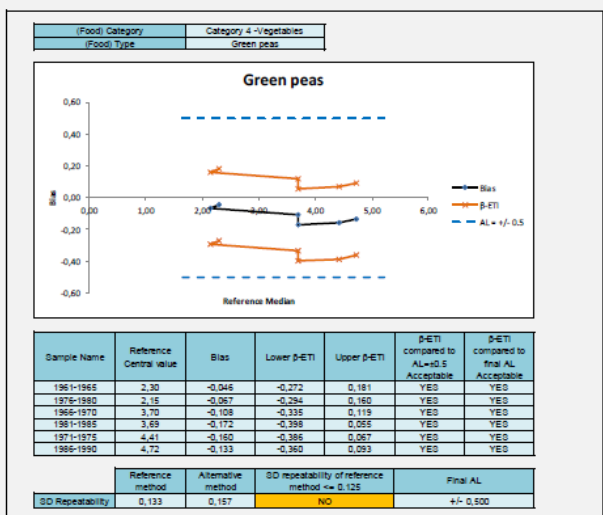
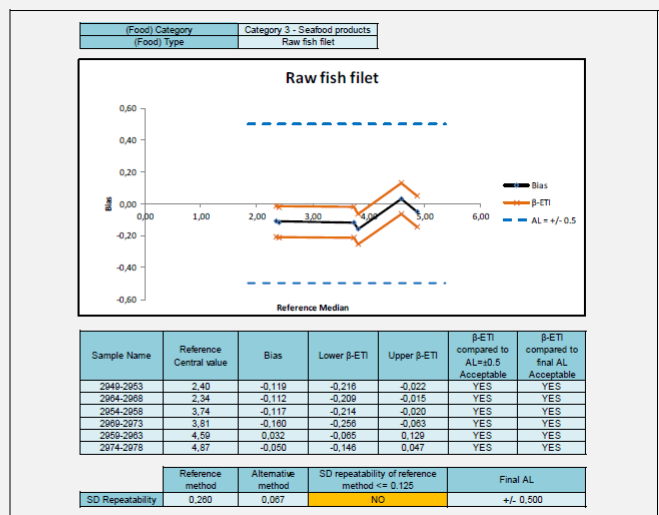
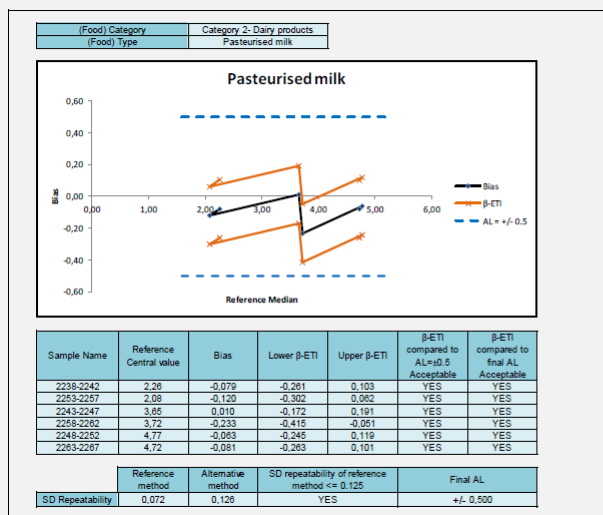
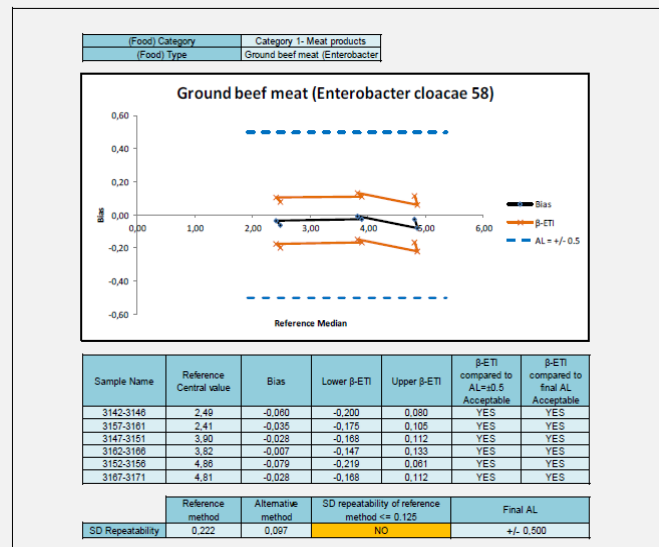
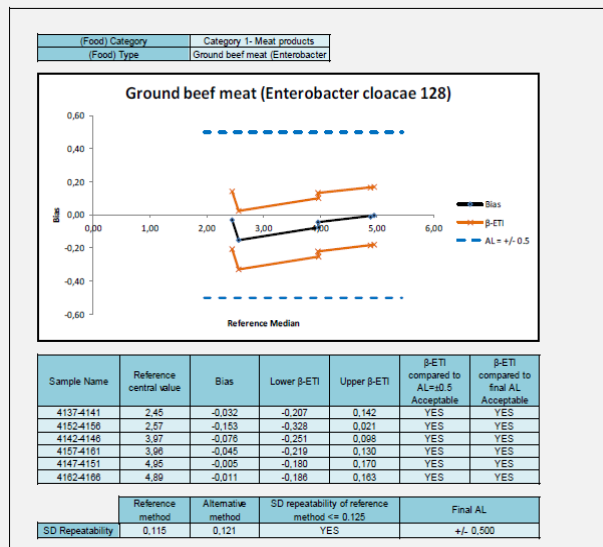
The accuracy profiles are comprised within the Acceptability Limits for all the tested matrices.

Figure 20: accuracy profiles

Coliforms after 14 h incubation time

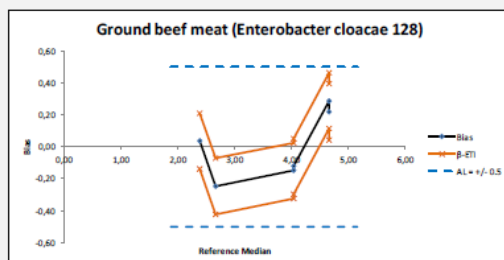


Coliforms after 24 h incubation time



Gas producing coliforms after 24 h incubation time

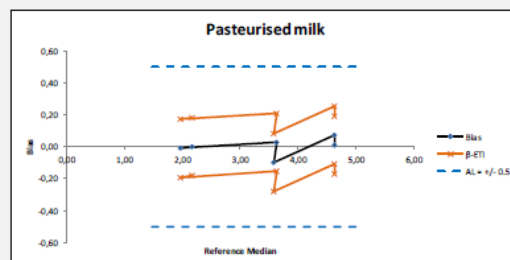
(Food) Category: Category 1- Meat products
(Food) Type: Ground beef meat (Enterobacter)



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=0.5 Acceptable	β-ETI compared to final AL Acceptable
4137-4141	2.38	0.035	-0.140	0.209	YES	YES
4152-4156	2.66	-0.249	-0.422	-0.073	YES	YES
4162-4165	4.04	-0.149	-0.324	0.026	YES	YES
4187-4161	4.04	-0.122	-0.297	0.052	YES	YES
4147-4151	4.66	0.287	0.112	0.461	YES	YES
4152-4166	4.66	0.218	0.043	0.393	YES	YES

	Reference method	Alternative method	SD repeatability of reference method ≤ 0.125	Final AL
SD Repeatability	0.317	0.121	NO	+/- 0.500

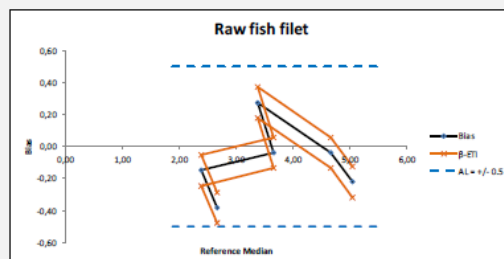
(Food) Category: Category 2- Dairy products
(Food) Type: Pasteurised milk



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=0.5 Acceptable	β-ETI compared to final AL Acceptable
2238-2242	2.18	0.000	-0.182	0.182	YES	YES
2263-2267	1.97	-0.009	-0.191	0.172	YES	YES
2243-2247	3.63	0.029	-0.153	0.211	YES	YES
2258-2262	3.59	-0.100	-0.282	0.082	YES	YES
2248-2252	4.63	0.074	-0.108	0.256	YES	YES
2263-2267	4.63	0.010	-0.172	0.192	YES	YES

	Reference method	Alternative method	SD repeatability of reference method ≤ 0.125	Final AL
SD Repeatability	0.295	0.126	NO	+/- 0.500

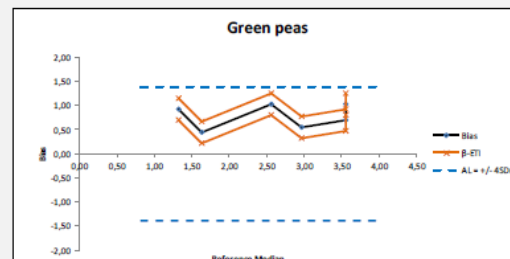
(Food) Category: Category 3- Seafood products
(Food) Type: Raw fish fillet



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=0.5 Acceptable	β-ETI compared to final AL Acceptable
2949-2953	2.66	-0.384	-0.481	-0.287	YES	YES
2964-2968	3.38	-0.150	-0.246	-0.053	YES	YES
2954-2958	3.66	-0.040	-0.136	0.057	YES	YES
2959-2973	3.38	0.073	0.176	0.270	YES	YES
2959-2963	4.66	-0.040	-0.136	0.057	YES	YES
2974-2978	5.04	-0.222	-0.319	-0.125	YES	YES

	Reference method	Alternative method	SD repeatability of reference method ≤ 0.125	Final AL
SD Repeatability	0.365	0.067	NO	+/- 0.500

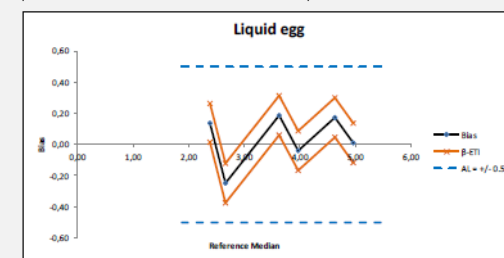
(Food) Category: Category 4- Vegetables
(Food) Type: Green peas



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=0.5 Acceptable	β-ETI compared to final AL Acceptable
1961-1965	1.32	0.533	0.705	1.160	NO	YES
1976-1980	1.63	0.446	0.219	0.672	NO	YES
1966-1970	2.56	1.035	0.808	1.261	NO	YES
1981-1985	2.96	0.555	0.328	0.781	NO	YES
1971-1975	3.56	0.699	0.472	0.926	NO	YES
1986-1990	3.56	1.035	0.808	1.261	NO	YES

	Reference method	Alternative method	SD repeatability of reference method ≤ 0.125	Final AL
SD Repeatability	0.347	0.157	NO	+/- 1.388

(Food) Category: Category 5- Egg products and
(Food) Type: Liquid egg



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=0.5 Acceptable	β-ETI compared to final AL Acceptable
1889-1892	2.38	0.138	0.013	0.264	YES	YES
1903-1907	2.66	-0.248	-0.373	-0.123	YES	YES
1893-1897	3.63	0.186	0.060	0.312	YES	YES
1908-1912	3.97	-0.039	-0.165	0.087	YES	YES
1898-1902	4.63	0.173	0.047	0.298	YES	YES
1913-1917	4.97	0.009	-0.116	0.135	YES	YES

	Reference method	Alternative method	SD repeatability of reference method ≤ 0.125	Final AL
SD Repeatability	0.239	0.097	NO	+/- 0.500

It is important to note that the accuracy profile obtained for the green peas matrix for gas-forming coliforms is outside the acceptability limits. This is explained by a comparison with the ISO 4831 reference method based on an MPN counting principle with a lack of precision.

3.1.2.3. Conclusion

The observed profiles are comprised within the Acceptability Limit except for green peas. All other accuracy profiles fulfil the performance criteria.

3.1.3. Inclusivity and exclusivity studies

3.1.3.1. Protocols

- **Inclusivity**

20 strains were tested during the previous validation studies by the NEOGEN® Petrifilm® RCC, VRBL and PCA; the ISO 4831 was not performed.

The study has been completed by testing 30 additional target strains.

- **Exclusivity**

17 strains were tested for the previous validation studies; 13 non-target strains were tested to complete the study.

For this renewal study, all the target and non-target strains were tested using the three methods: ISO 4831, ISO 4832 and NEOGEN® Petrifilm® RCC (14 h and 24 h incubation times).

Each test was performed once. The inoculation level shall obtain a countable number on the plate, except for the ISO 4831 for which one loop from BHI culture will be transferred in a LST broth before inoculation.

3.1.3.2. Results

The raw data are provided in Appendix G.

- **Inclusivity**

All the target strains tested (50) gave typical colonies on Petrifilm® tests whatever the incubation time, 14h or 24 h, and on VRBL plates.

12 strains were not able to produce gas in Petrifilm® tests and 7 in BLVB tubes but note that only 30 strains were tested for gas producing using the ISO 4831 method; 20 strains were tested for gas producing only in Petrifilm® tests.

The negative results concern the following species:

ISO 4831 negative strains	RCC gas producing negative strains
<i>Cronobacter malonaticus</i>	<i>Citrobacter freundii</i> (4)
<i>Corobacter sakazakii</i>	<i>Citrobacter diversus</i> (2)
<i>Enterobacter aerogenes</i>	<i>Citrobacter farmeri</i>
<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> (2)
<i>Enterobacter hormaechei</i>	<i>Hafnia alvei</i> (2)
<i>Enterobacter intermedius</i>	<i>Serratia liquefaciens</i>
<i>Klebsiella oxytoca</i>	

- **Exclusivity**

14 non-target strains among the 30 tested were able to grow and give typical colonies on RCC, 4 of them shown gas producing colonies (*Aeromonas hydrophila* (2 strains), *Pluralibacter gergoviae*,

Raoultella terrigena). 13 strains also gave typical colonies on VRBL plates (ISO 4832) and 4 were able to produce gas in BLBVB tubes (ISO 4831): *Pluralibacter gergoviae*, *Raoultella terrigena*, *Serratia liquefaciens* and *Shigella flexneri*.

The specificity of the alternative method is similar to the specificity of the reference methods (ISO 4831 and ISO 4832).

3.1.4. Practicability

The alternative method practicability was evaluated according to the AFNOR criteria relative to method comparison study.

<i>Storage conditions, shelf-life and modalities of utilization after first use</i>	The storage conditions and the expiration data are mentioned on the package. The modalities of utilization are described in the technical data sheet.			
<i>Time to result</i>	Steps	Reference method		Alternative method
		ISO 4831	ISO 4832	
	Negative samples			
	Analysis	Day 0	Day 0	Day 0
	Enumeration	Day 2	Day 1	Day 1
	Presumptive positive or positive results			
	Analysis	Day 0	Day 0	Day 0
	Enumeration	Day 4	Day 1	Day 1
<i>Common step with the reference method</i>	Initial suspension preparation			

For the total coliforms enumeration, the negative and positive results are available in one day for the alternative method and the ISO 4832 method. For the gas producing coliforms, the negative results are available in 2 days and the positive results in 4 days.

3.2. Interlaboratory study

3.2.1. Organization of the study

The results of the inter-laboratory study run in 1997 with pasteurized half- skimmed milk inoculated with *Enterobacter cloacae* Adria 10 was interpreted according to the EN ISO 16140-2:2016 standard using the Excel spread sheet available at <http://standards.iso.org/iso/16140> (AP Calculation tool ILS (clause 6.2.3 Calculation summary and interpretations of data) ver. 14.03.2016). 12 collaborators were involved in the study.

3.2.2. Control of the experimental parameters

3.2.2.1. Samples stability

In order to evaluate the *Enterobacter cloacae* strain behavior during transport, bacterial counts were done at different time, i.e. inoculation time (enumeration in simpicate using the ISO 4832 method), and after 24 h storage at $3^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Results are reported in Table 10.

Table 10: *Enterobacter cloacae* count (log CFU/mL)

	Method	Level 1 (1,00-2,00)		Level 2 (2,00-3,00)		Level 3 (3,00-4,00)	
		Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2
Day 0	ISO 4832	1,60	/	2,64	/	3,57	/
Day 1	ISO 4831	1,38	1,66	3,04	2,97	3,38	3,66
	ISO 4832	0,74	1,3	2,24	1,74	3,12	2,98
	RCC 14 h	1,55	1,59	2,37	2,37	3,55	3,62
	RCC 24h	1,60	1,61	2,39	2,37	3,55	3,62
	RCC gas 24 h	1,60	1,61	2,39	2,37	3,55	3,62

No evolution was observed during storage for 24 h at $3^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

3.2.2.2. Logistic conditions

The temperatures measured at reception by the Labs, the temperatures registered by the thermo-probe, and the receipt dates are given in Table 11.

Table 11: sample temperatures at receipt

Collaborators	Temperature measured at receipt (°C)	Receipt date	Analysis date
A	<7,0	Day 1	Day 1
B	<7,0	Day 1	Day 1
C	<7,0	Day 1	Day 1
D	<7,0	Day 1	Day 1
E	<7,0	Day 1	Day 1
F	5,0	Day 2	Day 2
G	2,9	Day 2	Day 2
H	9,0	Day 2	Day 2
I	<7,0	Day 1	Day 1
J	<7,0	Day 1	Day 1
K	1,4	Day 2	Day 2
L	<7,0	Day 1	Day 1

No problem was encountered during the transport or at receipt for the 8 collaborators. 5 collaborators received their samples at Day 2 instead of at day 1, for three of them the temperature at receipt was correct and their results were kept for interpretation (F, G and K). For collaborator H, the temperature at receipt was above the limit (9°C), the results were not kept for this lab.

3.2.3. Results analysis

3.2.3.1. Results obtained by the expert laboratory

The results obtained by the expert Lab. are the following (See Table 12).

Table 12: expert laboratory results.

Coliforms after 14 h incubation time				
Level (log CFU/g)	Reference method: ISO 4832		Alternative method: Test Petrifilm RCC 14h	
	Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2
< 10	< 1	< 1	1	2
10 - 100	5	20	35	39
100 - 1 000	170	55	240	240
1 000 - 10 000	1 300	960	3 500	4 200

Coliforms after 24 h incubation time				
Level (log CFU/g)	Reference method: ISO 4832		Alternative method: Test Petrifilm RCC 24h	
	Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2
< 1	< 1	< 1	1	2
10 - 100	5	20	40	41
100 - 1 000	170	55	250	240
1 000 - 10 000	1 300	960	3 500	4 200

Gas producing coliforms after 24 h incubation time				
Level (log CFU/g)	Reference method: ISO 4831		Alternative method: Test Petrifilm gas+	
	Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2
< 1	0,3	0,3	1	2
10 - 100	24	46	40	41
100 - 1 000	1 100	930	250	240
1 000 - 10 000	2 400	4 600	3 500	4 200

3.2.3.2. Results obtained by the collaborators

Samples were sent to 12 collaborators. The results from eleven laboratories were used (results from collaborator H not kept due to samples receipt at 9°C). Note that collaborator K didn't proceed to enumeration of coliforms after 14 h incubation of the Petrifilm® tests, this means that only 10 data sets are available after 14 h incubation time.

- **Coliforms enumeration**

A summary of the test results is given in Table 13 (CFU/ml).

Table 13: summary of the data (CFU/mL).

Coliforms after 14 h incubation time																
Collaborator	Level 0				Level 1				Level 2				Level 3			
	Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method	
A	<1	<1	<1	<1	44	63	28	31	520	330	260	330	3500	3500	3800	3800
B	2	<1	<1	3	45	43	35	31	520	450	330	320	5600	4200	5100	5200
C	<1	<1	<1	<1	28	30	40	25	280	220	360	410	4000	6200	3900	4900
D	<1	<1	<1	<1	55	46	32	29	440	310	380	290	5800	4500	4000	5300
E	<1	<1	<1	2	56	38	37	39	310	330	340	420	5000	6700	4600	3800
F	20	0	1	2	390	37	250	69	470	560	260	450	2300	4000	3300	3200
G	<1	<1	<1	<1	29	39	31	28	420	390	473	410	4500	4100	3800	4800
I	<1	<1	<1	<1	43	45	25	21	490	540	260	390	3800	1400	3500	2400
J	<1	1	<1	<1	44	41	38	34	410	490	420	400	7000	5800	6500	4800
L	<1	<1	<1	<1	45	44	26	28	360	410	400	355	5500	5100	5000	3900

Coliforms after 24 h incubation time																
Collaborator	Level 0				Level 1				Level 2				Level 3			
	Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method	
A	<1	<1	<1	2	44	63	34	42	520	330	360	360	3500	3500	4700	4000
B	2	<1	<1	<1	45	43	44	37	520	450	340	320	5600	4200	5200	5300
C	<1	<1	1	<1	28	30	50	41	280	220	360	460	4000	6200	4900	5300
D	<1	<1	<1	<1	55	46	41	35	440	310	410	300	5800	4500	4000	5200
E	<1	<1	<1	2	56	38	45	42	310	330	360	430	5000	6700	4900	4100
F	20	0	3	3	390	37	26	72	470	560	290	540	2300	4000	4100	3400
G	<1	<1	1	<1	29	39	42	34	420	390	510	440	4500	4100	4500	5100
I	<1	<1	<1	<1	43	45	44	37	490	540	270	440	3800	1400	4500	3400
J	<1	1	<1	<1	44	41	46	32	410	490	430	420	7000	5800	6600	5000
K	1	<1	1	2	43	46	35	27	340	490	370	510	5500	6000	4500	4800
L	<1	<1	<1	<1	45	44	36	33	360	410	400	360	5500	5100	5100	3900

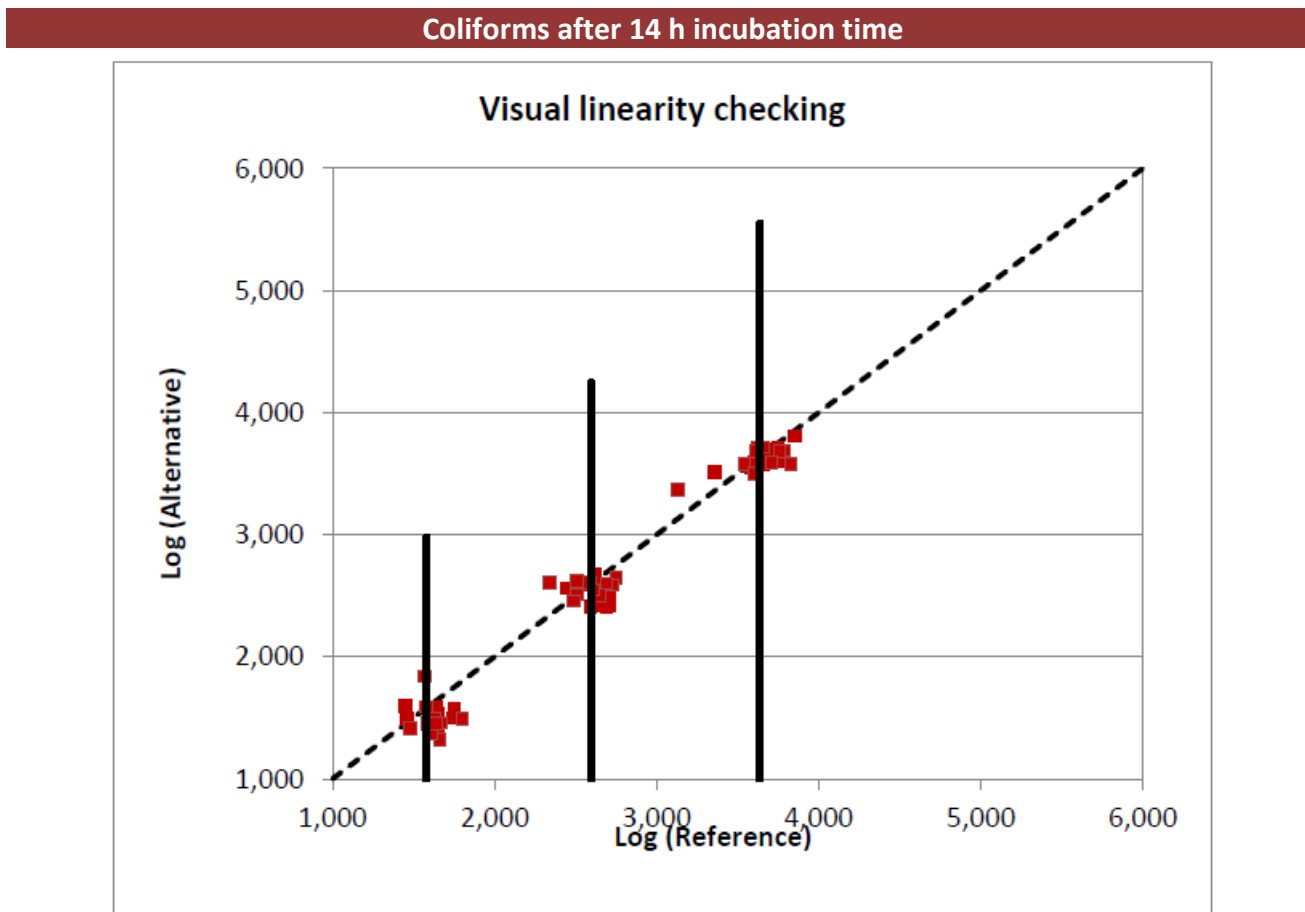
Gas producing coliforms after 24 h incubation time																
Collaborator	Level 0				Level 1				Level 2				Level 3			
	Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method	
A	<0,3	0,92	<1	2	75	23	10	31	930	430	360	290	2400	11000	4600	3600
B	0,3	<0,3	<1	<1	14	93	44	37	430	930	340	320	4600	11000	5200	5300
C	<0,3	0,36	<1	<1	93	43	48	51	930	240	360	460	11000	4600	4800	5300
D	0,92	<0,3	<1	<1	24	38	41	35	930	230	410	300	4600	2400	4000	5200
E	0,36	0,92	<1	2	43	93	45	42	1500	430	360	430	2400	2400	4900	4100
F	2,3	0,92	3	3	930	43	26	72	230	380	290	540	2400	2400	4100	3400
G	0,36	<0,3	1	<1	75	43	40	34	430	930	510	440	11000	1100	4500	5100
I	1,5	<0,3	<1	<1	240	21	44	37	20	240	270	440	>11000	2100	4500	3400
J	<0,3	<0,3	<1	<1	24	93	46	32	240	240	430	420	11000	2400	6600	5000
K	0,3	0,92	1	2	43	150	35	27	930	430	370	510	>11000	11000	4500	4800
L	0,36	0,36	<1	<1	29	43	36	33	930	150	380	360	4600	11000	5100	3900

3.2.4. Calculation and interpretation

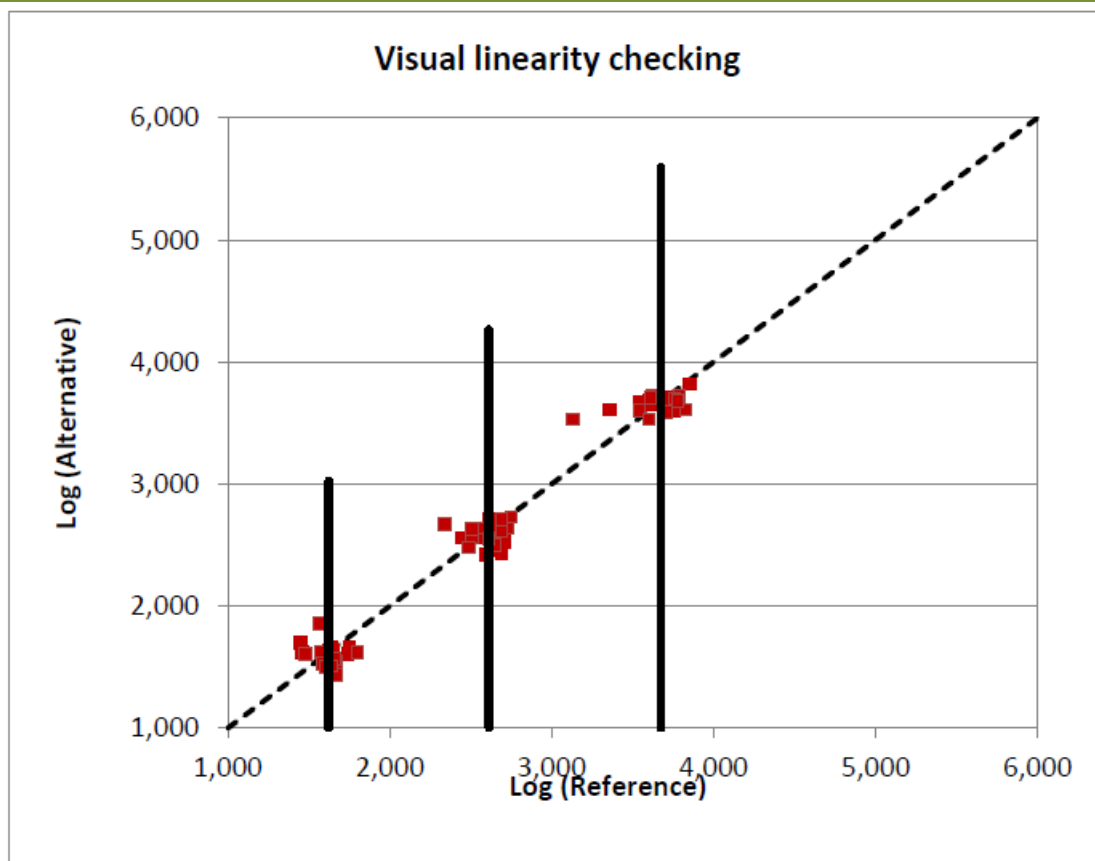
3.2.4.1. Visual linearity checking

The figure 21 shows the data points after log₁₀ transformation. The visual inspection shows that the alternative method gives results, which are proportional to those of the reference method. The data are distributed closely to the first bisecting lines with a slope equal to 1.

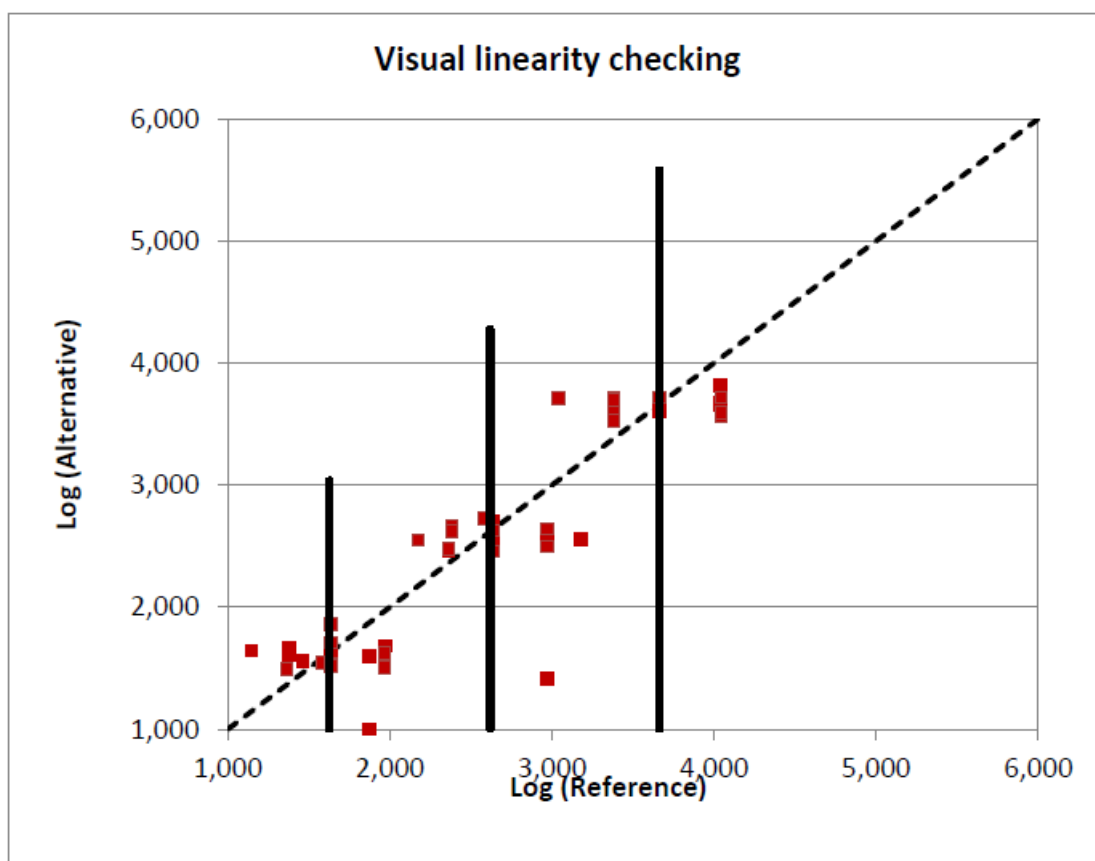
Figure 21: visual linearity checking



Coliforms after 24 h incubation time



Gas producing coliforms after 24 h incubation time



3.2.4.2. Accuracy profile calculation

Statistical calculations were done according to the Excel spreadsheet named AP calculation tool_ILS_(clause_6-2-3_Calculations_summary_and_interpretation_of_data)_ver.14-03-2016.xlsx available at <http://standards.iso.org/iso/16140>.

A summary of the parameters calculated is presented in table 14.

Table 14: summary of the statistical test

Coliforms after 14 h incubation time

Accuracy profile

Study Name

Date

Coordinator

Tolerance probability (beta)

Acceptability limit in log (lambda)

IM Petrifilm RCC

13/17

ADRIA Développement

80%80%80%

0.500.500.50

FAUX

Application of clause 6.2.3

Step 8: If any of the values for the β -ETI fall outside the acceptability limits, calculate the pooled average reproducibility standard deviation of the reference method.

Step 9: Calculate new acceptability limits as a function of this standard deviation.

Alternative method

Levels

Low

Medium

High

Target value

Number of participants (K)

Average for alternative method

Repeatability standard deviation (sr)

Between-labs standard deviation (sL)

Reproducibility standard deviation (sR)

Corrected number of dof

Coverage factor

Interpolated Student t

Tolerance interval standard deviation

Lower TI limit

Upper TI limit

Bias

Relative Lower TI limit (beta = 80%)

Relative Upper TI limit (beta = 80%)

Lower Acceptability Limit

Upper Acceptability Limit

1,672

2,603

3,640

10

10

10

1,548

2,553

3,621

0,136

0,081

0,070

0,186

0,000

0,070

0,231

0,081

0,099

12,707

18,947

14,570

1,407

1,361

1,392

1,352

1,328

1,343

0,2400

0,0629

0,1024

1,234

2,443

3,484

1,873

2,663

3,759

-0,123

-0,050

-0,019

-0,448

-0,160

-0,157

0,201

0,060

0,118

-0,50

-0,50

-0,50

0,50

0,50

0,50

Reference method

Low

Medium

High

10

10

10

1,672

2,603

3,640

0,237

0,069

0,129

0,000

0,085

0,103

0,237

0,110

0,165

18,947

13,269

15,934

Select ALL blue lines to draw the accuracy profile as illustrated in the worksheet "Graph Profile"

New acceptability limits may be based on reference method pooled variance

Pooled repro standard dev of reference

0,178

Gas producing coliforms after 24 h incubation time

Accuracy profile			
Study Name	3M Petrifilm RCC		
Date	1997		
Coordinator	ADRIA Développement		
Tolerance probability (beta)	80%	80%	80%
Acceptability limit in log (lambda)	0,50	0,50	0,50

Application of clause 6.2.3

Step 8: If any of the values for the β -ETI fall outside the acceptability limits, calculate the pooled average reproducibility standard deviation of the reference method.

Step 9: Calculate new acceptability limits as a function of this standard deviation.

Alternative method

Levels	Low	Medium	High
Target value	1,754	2,610	3,645
Number of participants (K)	11	11	9
Average for alternative method	1,562	2,584	3,667
Repeatability standard deviation (sr)	0,151	0,092	0,062
Between-labs standard deviation (sl)	0,051	0,000	0,036
Reproducibility standard deviation (sR)	0,159	0,092	0,072
Corrected number of dof	20,527	20,952	15,544
Coverage factor	1,357	1,353	1,384
Interpolated Student t	1,324	1,323	1,339
Tolerance interval standard deviation	0,1630	0,0943	0,0742
Lower TI limit	1,346	2,459	3,568
Upper TI limit	1,778	2,709	3,767
Bias	-0,192	-0,026	0,023
Relative Lower TI limit (beta = 80%)	-0,408	-0,151	-0,077
Relative Upper TI limit (beta = 80%)	0,024	0,098	0,122
Lower Acceptability Limit	-0,50	-0,50	-0,50
Upper Acceptability Limit	0,50	0,50	0,50

Reference method

Low	Medium	High
11	11	9
1,754	2,610	3,645
0,469	0,387	0,364
0,000	0,125	0,000
0,469	0,407	0,364
20,952	20,585	16,941

Select ALL blue lines to draw the accuracy profile as illustrated in the worksheet "Graph Profile"

The data observed for the three methods are summarized in Table 15.

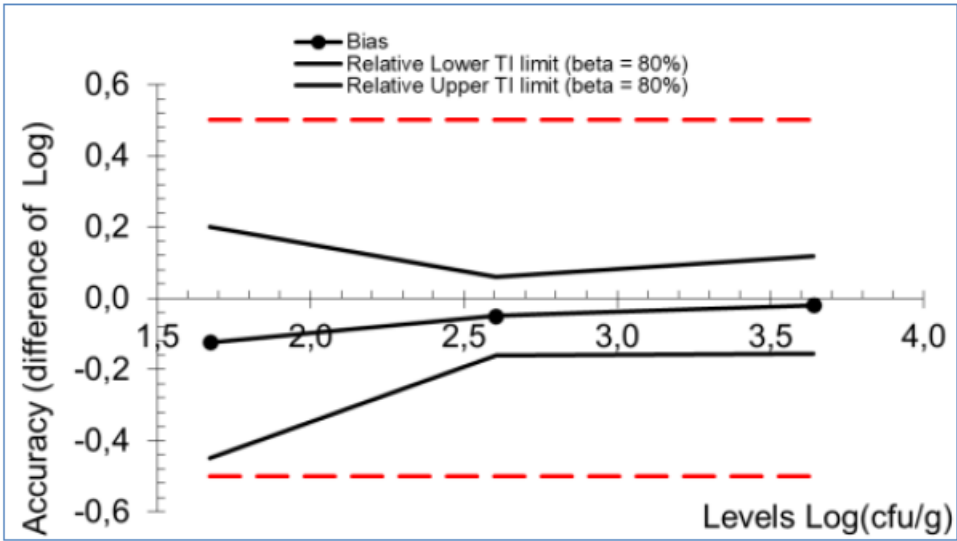
For the gas producing coliforms data interpretation, the results from only 9 collaborators can be used for the high inoculation level as results above the quantification limit have been obtained for two collaborators (I and J) with the ISO 4831 method.

Table 15: summary of the results observed for the 3 methods

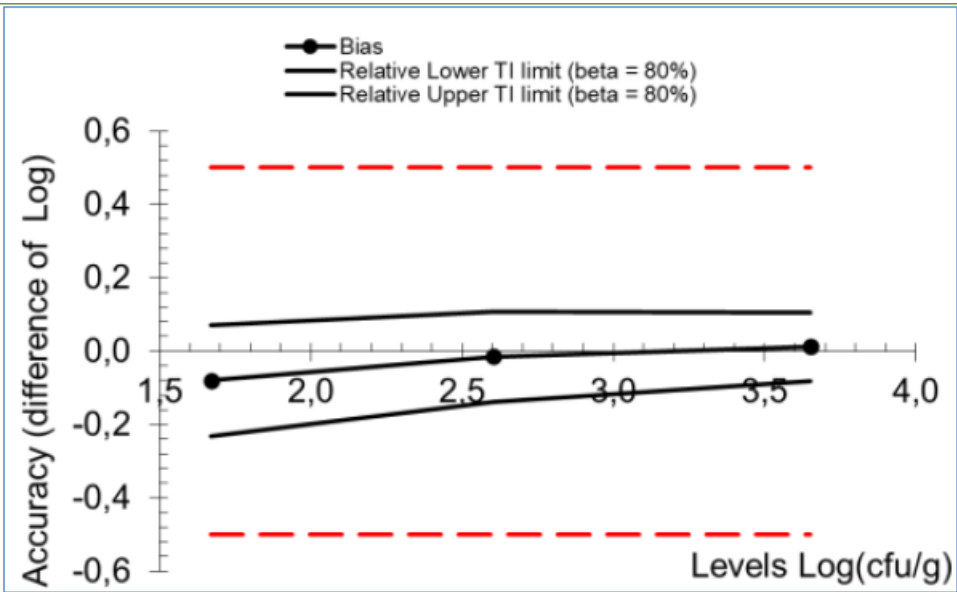
	Coliforms 14 h			Coliforms 24 h			Gas producing coliforms 24 h		
Data sets	10	10	10	11	11	11	11	11	9
Inoculation level	Low level	Medium level	High level	Low level	Medium level	High level	Low level	Medium level	High level
Target value	1,672	2,603	3,640	1,670	2,604	3,651	1,754	2,610	3,645
Bias	-0.123	-0.050	-0.019	-0,080	-0,015	0,012	-0,192	-0,026	0,023
β.ETI lower (80 %)	-0.448	-0.160	-0.157	-0,232	-0,137	-0,081	-0,408	-0,151	-0,077
β.ETI upper (80 %)	0.201	0.060	0.118	0,071	0,107	0,105	0,024	0,098	0,122
Lower AL	-0,500								
Upper AL	0,500								

Figure 22: accuracy profile

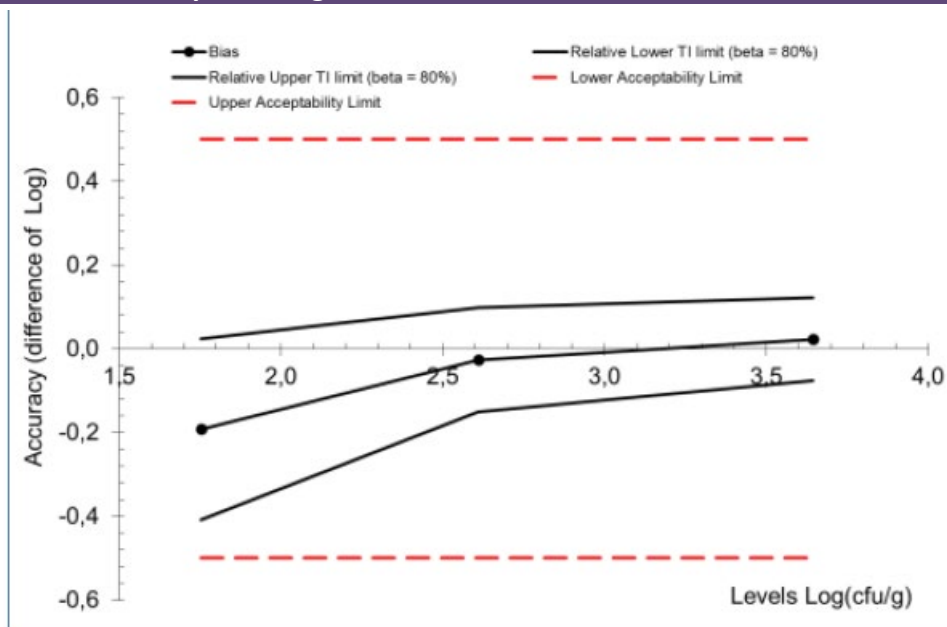
Coliforms after 14 h incubation time



Coliforms after 24 h incubation time



Gas producing coliforms after 24 h incubation time



It is observed that for all the levels, the tolerance interval limits of the alternative method are within the acceptable limits of 0.5 log.

The results obtained with the alternative method are not statically different than those obtained with the reference method.

3.2.5. Conclusion of the interlaboratory study

The alternative method for enumeration of coliforms after 14h or 24 h incubation time and the enumeration of gas producing coliforms after 24 h incubation time is regarded as being equivalent to the reference method.

4. General conclusion of the validation study

The observed data and interpretation confirm the performances of the alternative method:

- 175, 173 and 118 samples giving interpretable results were tested respectively for the enumeration of coliforms after 14 h incubation time, 24 h incubation time and for enumeration of gas producing coliforms after 24 h incubation time in the relative trueness study, which clearly satisfied the required criteria for quantitative method comparison per ISO 16140-2;
- The observed profiles are comprised within the AL actually set at 0.5 Log CFU/g in the EN ISO 16140-2:2016.
- The inclusivity and exclusivity testing shows satisfying results.
- The quality assurance parameters were verified (i.e., targeted levels, strain stability, logistic conditions, analyses), confirming that the inter-laboratory study was conducted in appropriate conditions.
- The data interpretations were done according to the EN ISO 16140- 2:2016. For the three contamination levels, the alternative method is accepted as equivalent to the reference method.

Based on the results obtained for the method comparison study and the inter-laboratory study, the alternative method is considered equivalent to the reference method.

The data and their interpretation produced in this renewal report fulfill the requirements of both the EN ISO 16140-2/A1 (2024) standard and the version 12 of the Requirements regarding comparison and interlaboratory studies for implementation of the standard EN ISO 16140-2.

Le Lion d'Angers, June 20, 2025

Guillaume MESNARD
Technical deputy manager



François Le Nestour
Head of the Methods Validation studies and R&D



APPENDICES

**Appendix A – Flow diagram of the alternative
method: NEOGEN Petrifilm Rapid Coliform Count
RCC**

Initial suspension 1/10 (solid product) according to ISO 6887 parts

Sample for analysis (liquid product)

Adjust the pH between 6.5 and 7.5 if necessary



Decimal dilutions in peptone salt



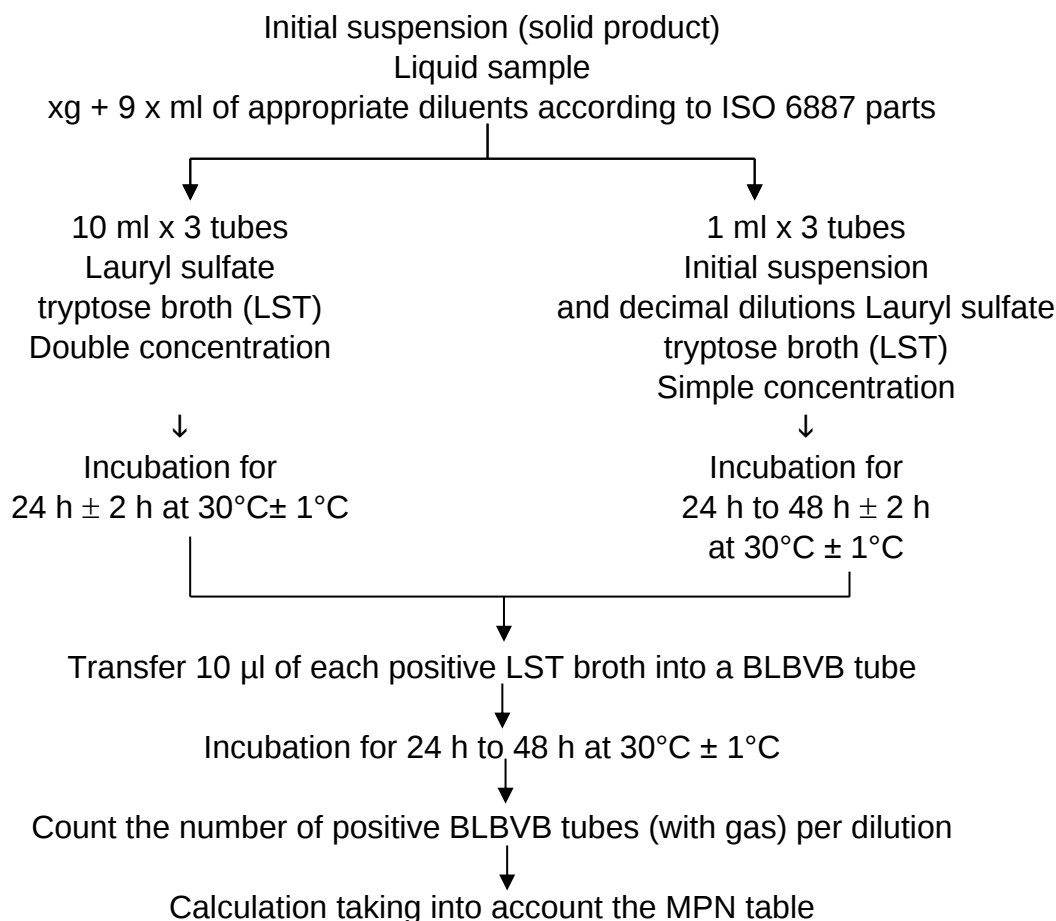
Inoculation of the Petrifilm Test with 1 ml suspension



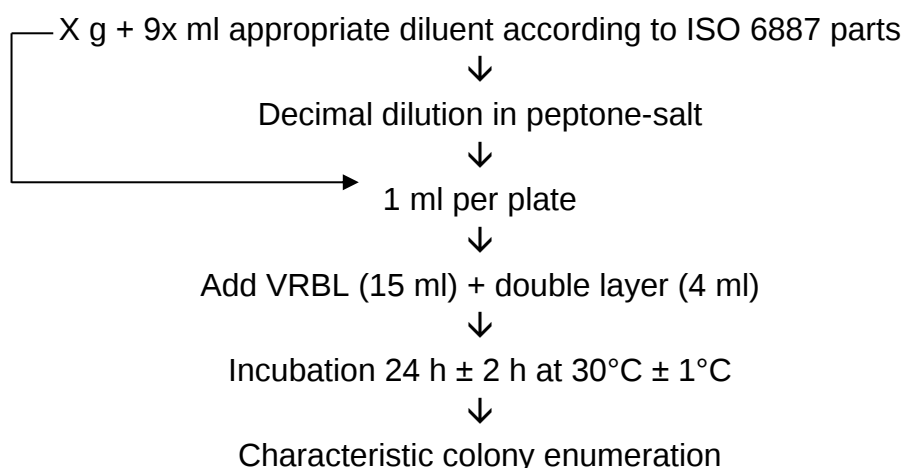
Seafood products	Processed pork products	Other food products
Incubation for 14 h ± 30 min at 30°C ± 1°C ↳ Enumeration of all the colonies <u>or</u> Incubation for 24 h ± 2 h at 30°C ± 1°C ↳ Enumeration of gas producing colonies <u>or</u> ↳ Enumeration of all the colonies	Incubation for 14 h ± 30 min at 30°C ↳ Enumeration of all the coliforms <u>or</u> Incubation for 24 h ± 2 h at 30°C ± 1°C ↳ Enumeration of all the colonies	Incubation for 14 h ± 30 min at 35°C ± 1°C ↳ Enumeration of all the colonies <u>or</u> Incubation for 24 h ± 2 h at 35°C ± 1°C ↳ Enumeration of gas producing colonies <u>or</u> ↳ Enumeration of all the colonies

**Appendix B – Flow diagram of the reference
methods: NF ISO 4831 (2006) and NF ISO 4832 (2006)**

**NF ISO 4831 (2006) - Microbiology of food and animal feeding stuffs -
Horizontal method for the detection and enumeration of coliforms -
Most probable number technique**



**NF ISO 4832 (2006) Microbiology of food and animal feeding stuffs —
Horizontal method for the enumeration of coliforms — Colony-count technique**



Appendix C – Artificial contaminations of samples

* Samples not tested for gas producing coliforms

Year of analysis	N° Sample	Product	Product (French name)	Artificial contaminations			pH		Category	Type
				Strain	Origin	Injury protocol	Before	After		
ADRIA 2021	1724	RTE chicken meat	Emincés de poulet rôti au four	<i>E. coli</i> Ad2001	Meat product	Seeding 48h 3±2°C	6,98	/	1	c
ADRIA 2021	1725	RTE chicken meat	Aiguillettes de poulet rôti	<i>E. coli</i> Ad2001	Meat product	Seeding 48h 3±2°C	6,94	/	1	c
ADRIA 2021	1726	Pastry with cream	Choux à la crème	<i>P. agglomerans</i> 74	Dairy product	Seeding 48h 3±2°C	7,01	/	2	c
ADRIA 2021	1727	Rice pudding	Riz au lait maison	<i>P. agglomerans</i> 74	Dairy product	Seeding 48h 3±2°C	7,02	/	2	c
ADRIA 2021	1728	Rice pudding	Riz au lait nature traiteur	<i>P. agglomerans</i> 74	Dairy product	Seeding 48h 3±2°C	7,04	/	2	c
ADRIA 2021	1729	Tiramisu	Tiramisu traiteur	<i>E. kobei</i> Ad706	Dairy product	Seeding 48h 3±2°C	7,03	/	2	c
ADRIA 2021	1730	Tiramisu	Tiramisu au speculos	<i>E. kobei</i> Ad706	Dairy product	Seeding 48h 3±2°C	7,09	/	2	c
ADRIA 2021	1731	Panna cotta	Panna cotta fruits rouge	<i>E. kobei</i> Ad706	Dairy product	Seeding 48h 3±2°C	6,75	/	2	c
ADRIA 2021	1732	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	<i>E. cloacae</i> 128	Meat product	Seeding 48h 3±2°C	6,98	/	1	c
ADRIA 2021	1733	RTRH pork meat	Palette de porc supérieure	<i>E. cloacae</i> 128	Meat product	Seeding 48h 3±2°C	7,01	/	1	c
ADRIA 2021	1734	RTRH pork meat	Petit salé de porc supérieur	<i>H. alvei</i> 168	Meat product	Seeding 48h 3±2°C	6,94	/	1	c
ADRIA 2021	1735	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	<i>H. alvei</i> 168	Meat product	Seeding 48h 3±2°C	6,95	/	1	c
ADRIA 2021	1850	Crumbs of tuna	Miettes de thon naturel	<i>E. coli</i> Ad228	Seafood product	Seeding 48h 3±2°C	6,77	/	3	b
ADRIA 2021	1851	Crumbs of tuna	Miettes de thon albacore	<i>E. coli</i> Ad228	Seafood product	Seeding 48h 3±2°C	6,81	/	3	b
ADRIA 2021	1852	Peeled raw shrimps	Crevettes crues décortiquées	<i>E. coli</i> Ad228	Seafood product	Seeding 48h 3±2°C	6,67	/	3	b
ADRIA 2021	1853	Peeled raw gambas	Queue de gambas sauvages crues décortiquées	<i>C. brakii</i> Ad2701	Seafood product	Seeding 48h 3±2°C	6,57	/	3	b
ADRIA 2021	1854	Seafood cocktail	Cocktail de fruits de mer (moules, calamars, crevettes)	<i>C. brakii</i> Ad2701	Seafood product	Seeding 48h 3±2°C	6,85	/	3	b
ADRIA 2021	1855	RTE carrot	Carottes épluchées coupées (prêtes à croquer)	<i>E. intermedius</i> 60	Vegetables	Seeding 48h 3±2°C	6,89	/	4	c
ADRIA 2021	1856	RTE radish	Radis prêt à manger	<i>E. intermedius</i> 60	Vegetables	Seeding 48h 3±2°C	6,98	/	4	c
ADRIA 2021	1857	Broccoli purée	Purée de brocolis	<i>E. intermedius</i> 60	Vegetables	Seeding 48h 3±2°C	6,98	/	4	c
ADRIA 2021	1858	Asparagus purée	Purée d'asperges	<i>P. agglomerans</i> 62	Vegetables	Seeding 48h 3±2°C	7,02	/	4	c
ADRIA 2021	1859	Split peas purée	Purée de pois cassés	<i>P. agglomerans</i> 62	Vegetables	Seeding 48h 3±2°C	6,61	/	4	c
ADRIA 2021	1860	RTRH food	Duo carottes et céleris, ail et ciboulette	<i>C. malonaticus</i> E684	Food product	Seeding 48h 3±2°C	6,56	/	5	c
ADRIA 2021	1861	RTE salad with ham	Piémontaise au jambon	<i>C. malonaticus</i> E684	Food product	Seeding 48h 3±2°C	6,7	/	5	c
ADRIA 2021	1862	RTE salad with mayonnaise and vegetables	Macédoine aux légumes	<i>C. malonaticus</i> E684	Food product	Seeding 48h 3±2°C	7,24	/	5	c
ADRIA 2021	1863	RTRH Asian food	Nouilles royales Bami Goreng (pates, crevettes, chou blanc, oignons)	<i>C. gilenii</i> Ad343	Food product	Seeding 48h 3±2°C	7,36	/	5	c
ADRIA 2021	1864	RTRH food	Tagliatelles à la carbonara	<i>C. gilenii</i> Ad343	Food product	Seeding 48h 3±2°C	7,93	/	5	c
ADRIA 2021	2531	Ham*	Jambon de Vendée	<i>K. pneumoniae</i> 28	Unknown	Seeding 48h 3±2°C	7,03	/	1	b
ADRIA 2021	2532	Sausage*	Saucisse de Montbéliard	<i>K. pneumoniae</i> 28	Unknown	Seeding 48h 3±2°C	6,83	/	1	b
ADRIA 2021	2533	Sausage*	Saucisse de Francfort	<i>E. aerogenes</i> Ad889	Meat products	Seeding 48h 3±2°C	7,03	/	1	b
ADRIA 2021	2534	Ham*	Jambon cuit supérieur	<i>E. aerogenes</i> Ad889	Meat products	Seeding 48h 3±2°C	6,91	/	1	b
ADRIA 2021	2535	Rice pudding	Riz au lait	<i>Pantoea agglomerans</i> 11	Dairy products	Seeding 48h 3±2°C	7,25	/	2	c
ADRIA 2021	2536	Rice pudding	Riz au lait	<i>Pantoea agglomerans</i> 11	Dairy products	Seeding 48h 3±2°C	7,07	/	2	c
ADRIA 2021	2537	Pana cotta	Panacotta fruit rouge	<i>Pantoea agglomerans</i> 11	Dairy products	Seeding 48h 3±2°C	7,08	/	2	c
ADRIA 2021	2538	White cheese	Fromage blanc	<i>K. oxytoca</i> 42	Unknown	Seeding 48h 3±2°C	6,72	/	2	c
ADRIA 2021	2539	Dairy based dessert (tiramisu)	Verrine chocolat crème café, tiramisu	<i>K. oxytoca</i> 42	Unknown	Seeding 48h 3±2°C	7	/	2	c
ADRIA 2021	2540	Pastry with vanilla	Eclair vanille	<i>E. coli</i> 142	Egg products	Seeding 48h 3±2°C	7,02	/	5	b
ADRIA 2021	2541	Yarrow pastry	Millefeuilles	<i>E. coli</i> 142	Egg products	Seeding 48h 3±2°C	7,09	/	5	b
ADRIA 2021	2542	Pudding pastry	Flan	<i>E. coli</i> 142	Egg products	Seeding 48h 3±2°C	7,08	/	5	b
ADRIA 2021	3132	Fish filet	Filet d'Eglefin	<i>Kluyvera ascorbata</i> Ad229	Seafood product	Seeding 48h 3±2°C	7,04	/	3	a

Year of analysis	N° Sample	Product	Product (French name)	Artificial contaminations			pH		Category	Type
				Strain	Origin	Injury protocol	Before	After		
ADRIA 2021	3133	Fish filet	Filet de lieu noir	<i>Kluyvera ascorbata</i> Ad229	Seafood product	Seeding 48h 3±2°C	7,06	/	3	a
ADRIA 2021	3134	RTRH vegetables galette	Galettes boulgour sarrasin et poireaux	<i>K. pneumoniae</i> Ad1314	Water	Seeding 48h 3±2°C	6,94	/	4	c
ADRIA 2021	3135	RTRH vegetables galette	Galettes de fèves et blé	<i>K. pneumoniae</i> Ad1314	Water	Seeding 48h 3±2°C	6,96	/	4	c
ADRIA 2021	3136	Potatoes purée	Ecrasé de pomme de terre aux deux carottes	<i>C. freundii</i> 35	Water	Seeding 48h 3±2°C	7,02	/	4	c
ADRIA 2021	3137	Carrot purée	Purée de carottes	<i>C. freundii</i> 35	Water	Seeding 48h 3±2°C	7,03	/	4	c
ADRIA 2021	3138	Broccoli purée	Purée de brocolis	<i>C. freundii</i> 35	Water	Seeding 48h 3±2°C	7,02	/	4	c
ADRIA 2021	3139	Lasagne with bolognese	Lasagnes à la bolognaise	<i>E. cloacae</i> 58	Food product	Seeding 48h 3±2°C	7	/	5	c
ADRIA 2021	3140	RTRH beef meat	Hachis parmentier	<i>E. cloacae</i> 58	Food product	Seeding 48h 3±2°C	6,98	/	5	c
ADRIA 2021	4232	RTRH pork meat with vegetables	Petit salé aux lentilles vertes	<i>E. coli</i> Ad2001	Meat product	Seeding 48h 3±2°C	6,99	/	5	c
ADRIA 2021	4233	RTRH fish product (with purée)	Parmentier de poisson	<i>Kluyvera ascorbata</i> Ad229	Seafood product	Seeding 48h 3±2°C	6,97	/	5	c
ADRIA 2021	4234	RTRH beef meat with tomato and pasta	Lasagne à la bolognaise	<i>E. coli</i> Ad2001	Meat product	Seeding 48h 3±2°C	7,01	/	5	c

Appendix D - Relative trueness study: raw data

MEAT PRODUCTS																							
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOGEN Petrifilm RCC Coliforms after 14 h incubation time						NEOGEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	48	Poultry meat	Escalope dinde				3,74	3,83	3,74				3,03	2,93	3,03				3,11	3,09	3,11	1	a
ADRIA 1997	62	Beef meat	Langue de boeuf				2,36	2,28	2,36				2,19	2,13	2,19				2,34	2,34	2,34	1	a
ADRIA 1997	76	Veal meat	Escalopes de veau				3,98	4,00	3,98													1	a
ADRIA 1997	77	Ground beef meat	Steack haché				5,40	5,48	5,40				5,13	5,17	5,13				5,30	5,40	5,30	1	a
ADRIA 1997	90	Chicken meat	Pilon de poulet				5,44	5,56	5,44				4,51	4,46	4,51				4,67	4,76	4,67	1	a
R Tech 1996	1	Ground beef meat	Boeuf haché				3,57	3,39	3,57				2,75	2,85	2,75				3,34	3,13	3,34	1	a
R Tech 1996	2	Ground beef meat	Boeuf haché				4,58	4,79	4,58				4,20	4,11	4,20				4,49	4,43	4,49	1	a
R Tech 1996	3	Ground beef meat	Boeuf haché				3,82	3,93	3,82				3,64	3,51	3,64				3,72	3,66	3,72	1	a
R Tech 1996	4	Ground beef meat	Boeuf haché				3,95	4,09	3,95				3,56	3,50	3,56				3,75	3,67	3,75	1	a
R Tech 1996	5	Ground beef meat	Boeuf haché				4,94	4,90	4,94				4,56	4,49	4,56				4,78	4,70	4,78	1	a
R Tech 1996	8	Ground beef meat	Boeuf haché				2,42	2,48	2,42				2,19	2,19	2,19				2,30	2,39	2,30	1	a
R Tech 1996	9	Ground beef meat	Boeuf haché				2,84	2,78	2,84				2,50	2,55	2,50				2,66	2,76	2,66	1	a
R Tech 1996	10	Ground beef meat	Boeuf haché				3,39	3,07	3,39				3,19	2,96	3,19				3,12	3,08	3,12	1	a
R Tech 1996	11	Ground beef meat	Boeuf haché				4,34	4,51	4,34				3,88	3,93	3,88				4,15	4,26	4,15	1	a
R Tech 1996	12	Ground beef meat	Boeuf haché				2,85	2,89	2,85				2,71	2,76	2,71				2,82	2,87	2,82	1	a
R Tech 1996	13	Ground beef meat	Boeuf haché				4,80	4,88	4,80				3,64	4,13	3,64				4,82	4,60	4,82	1	a
R Tech 1996	15	Ground beef meat	Boeuf haché				4,06	3,98	4,06				3,75	3,70	3,75				3,93	3,92	3,93	1	a
R Tech 1996	16	Ground beef meat	Boeuf haché				4,99	4,95	4,99				4,38	4,46	4,38				4,57	4,73	4,57	1	a
R Tech 1996	17	Ground beef meat	Boeuf haché				5,16	5,09	5,16				4,73	4,81	4,73				4,92	4,91	4,92	1	a
R Tech 1996	20	Ground beef meat	Boeuf haché				2,78	2,70	2,78				2,48	2,63	2,48				2,87	2,85	2,87	1	a
R Tech 1996	22	Ground beef meat	Boeuf haché				4,76	4,95	4,76				4,49	4,40	4,49							1	a

MEAT PRODUCTS

Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOPEN Petrifilm RCC Coliforms after 14 h incubation time						NEOPEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
R Tech 1996	23	Ground beef meat	Boeuf haché				5,15	5,14	5,15				4,46	4,46	4,46							1	a
R Tech 1996	24	Ground beef meat	Boeuf haché				3,71	3,74	3,71				3,21	3,19	3,21				3,81	3,80	3,81	1	a
R Tech 1996	25	Ground beef meat	Boeuf haché				3,83	3,96	3,83				3,37	3,26	3,37				3,91	3,82	3,91	1	a
R Tech 1996	26	Ground beef meat	Boeuf haché				4,92	4,86	4,92				4,18	3,94	4,18							1	a
R Tech 1996	27	Ground beef meat	Boeuf haché				3,57	3,44	3,57				2,76	2,82	2,76				3,32	3,41	3,32	1	a
R Tech 1996	28	Ground beef meat	Boeuf haché				4,88	4,91	4,88				3,53	3,41	3,53				4,81	4,82	4,81	1	a
R Tech 1996	29	Ground beef meat	Boeuf haché				4,76	4,73	4,76				3,89	3,69	3,89				4,56	4,60	4,56	1	a
R Tech 1996	31	Ground beef meat	Boeuf haché				3,96	3,90	3,96				3,94	3,85	3,94				3,83	3,75	3,83	1	a
R Tech 1996	32	Ground beef meat	Boeuf haché				4,54	4,46	4,54				4,32	4,53	4,32				4,09	4,16	4,09	1	a
R Tech 1996	36	Ground beef meat	Boeuf haché					2,30	2,30				2,16		2,16				2,16		2,16	1	a
R Tech 1996	38	Ground beef meat	Boeuf haché				2,76	2,50	2,76				2,37	2,39	2,37				2,49	2,44	2,49	1	a
R Tech 1996	39	Ground beef meat	Boeuf haché				4,76	4,62	4,76				4,86	4,86	4,86				4,62	4,68	4,62	1	a
ADRIA 2021	1724	RTE chicken meat	Emincés de poulet rôti au four	10	14	130	2,11		2,11	10	16	160	2,20		2,20	10	17	170	2,23		2,23	1	c
				100	0					100	2					100	2						
ADRIA 2021	1725	RTE chicken meat	Aiguillettes de poulet rôti	100	48	4500	3,65		3,65	100	82	7600	3,88		3,88	100	83	77000	4,89		4,89	1	c
				1000	2					1000	2					1000	2						
ADRIA 2021	1732	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	1000	6	6000	3,78		3,78	1000	3	3000	3,48		3,48*	1000	4	4000	3,60		3,60	1	c
				10000	0					10000	0					10000	0						
ADRIA 2021	1733	RTRH pork meat	Palette de porc supérieure	1000	26	27000	4,43		4,43	1000	12	11000	4,04		4,04	1000	13	12000	4,08		4,08	1	c
				10000	4					10000	0					10000	0						
ADRIA 2021	1734	RTRH pork meat	Petit salé de porc supérieur	10	43	450	2,65		2,65	10	47	480	2,68		2,68	10	50	520	2,72		2,72	1	c
				100	6					100	6					100	7						
ADRIA 2021	1735	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	100	28	2500	3,40		3,40	100	18	1800	3,26		3,26	100	18	1800	3,26		3,26	1	c
				1000	0					1000	2					1000	2						
ADRIA 2021	1736	RTRH lamb meat	Affranchi ovin (agneau)	10000	70	690000	5,84		5,84	10000	18	180000	5,26		5,26	10000	36	370000	5,57		5,57	1	c
				100000	6					100000	2					100000	5						
ADRIA 2021	1737	RTRH lamb meat	Poitrine d'agneau et sa sauce	100000	>150	40000000	7,60		7,60	100000	110	11000000	7,04		7,04	100000	120	12000000	7,08		7,08	1	c
				1000000	40					1000000	12					1000000	15						
ADRIA 2021	1738	RTRH duck meat	Viande de canard effiloché prêt à réchauffer	10	11	130	2,11		2,11	10	39	380	2,58		2,58	10	39	380	2,58		2,58	1	c
				100	3					100	3					100	3						
ADRIA 2021	1918	Merguez	Merguez	1000	57	55000	4,74		4,74	1000	40	42000	4,62		4,62	1000	55	57000	4,76		4,76	1	b
				10000	3					10000	6					10000	8						

MEAT PRODUCTS

Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOGEN Petrifilm RCC Coliforms after 14 h incubation time						NEOGEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	1919	Sausage	Saucisse nature	10	13	130	2,11		2,11	10	9	90	1,95		1,95 Ne	10	21	230	2,36		2,36	1	b
				100	1					100	2					100	4						
ADRIA 2021	2237	Duck meat	Viande de canard	10	30	280	2,45		2,45	10	58	560	2,75		2,75	10	62	600	2,78		2,78	1	a
				100	1					100	3					100	4						
ADRIA 2021	2531	Ham	Jambon de Vendée	10	11	130	2,11		2,11	10	100	1000	3,00		3,00	10	102	1100	3,04		3,04	1	b
				100	3					100	11					100	14						
ADRIA 2021	2532	Sausage	Saucisse de Montbéliard	100	93	9300	3,97		3,97	100	62	6100	3,79		3,79	100	78	7500	3,88		3,88	1	b
				1000	19					1000	5					1000	5						
ADRIA 2021	2533	Sausage	Saucisse de Francfort	1000	26	25000	4,40		4,40	1000	27	28000	4,45		4,45	1000	30	31000	4,49		4,49	1	b
				10000	2					10000	4					10000	4						
ADRIA 2021	2534	Ham	Jambon cuit supérieur	1000	71	71000	4,85		4,85	1000	55	57000	4,76		4,76	1000	70	71000	4,85		4,85	1	b
				10000	7					10000	8					10000	8						

DAIRY PRODUCTS																							
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOGEN Petrifilm RCC Coliforms after 14 h incubation time						NEOGEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	84	Raw milk	Lait cru				2,80	2,73	2,80				2,60	2,62	2,60				2,60	2,60	2,60	2	a
R Tech 1996	2	Raw milk	Lait cru				3,95	3,78	3,95				3,26	3,13	3,26				4,26	4,21	4,26	2	a
R Tech 1996	3	Raw milk	Lait cru				2,18	2,28	2,18				2,28	2,26	2,28				2,16	2,24	2,16	2	a
R Tech 1996	4	Raw milk	Lait cru					1,51	1,51										1,50	1,58	1,50	2	a
R Tech 1996	5	Raw milk	Lait cru				1,97	2,10	1,97				2,00	2,28	2,00				2,08	2,19	2,08	2	a
R Tech 1996	6	Raw milk	Lait cru				2,51	2,46	2,51				2,59	2,44	2,59				2,71	2,53	2,71	2	a
R Tech 1996	8	Raw milk	Lait cru				3,07	3,03	3,07				2,74	2,79	2,74				2,87	2,98	2,87	2	a
R Tech 1996	9	Raw milk	Lait cru				1,41	2,71	1,41										1,42	1,30	1,42	2	a
R Tech 1996	10	Raw milk	Lait cru				2,73	2,70	2,73				2,72	2,70	2,72							2	a
R Tech 1996	11	Raw milk	Lait cru				1,58	1,44	1,58				1,68	1,71	1,68				2,57	2,38	2,57	2	a
R Tech 1996	12	Raw milk	Lait cru				1,60	1,63	1,60				1,68	1,46	1,68				1,92	1,88	1,92	2	a
R Tech 1996	13	Raw milk	Lait cru				2,42	2,28	2,42				2,39	2,46	2,39				2,45	2,46	2,45	2	a
R Tech 1996	14	Raw milk	Lait cru				2,89	2,64	2,89				2,37	2,41	2,37					2,44	2,44	2	a
R Tech 1996	15	Raw milk	Lait cru				2,59	2,36	2,59										2,80	2,85	2,80	2	a
R Tech 1996	16	Raw milk	Lait cru				1,51	1,41	1,51				1,86	1,74	1,86				1,87	1,95	1,87	2	a
R Tech 1996	17	Raw milk	Lait cru				1,95	1,96	1,95				2,16	2,13	2,16				2,19	2,16	2,19	2	a
R Tech 1996	22	Raw milk	Lait cru				1,59	1,64	1,59				1,86	2,07	1,86				1,96	2,24	1,96	2	a
R Tech 1996	23	Raw milk	Lait cru				3,75	3,70	3,75				3,59	3,57	3,59				3,80	3,84	3,80	2	a
R Tech 1996	24	Raw milk	Lait cru				2,11	1,96	2,11				1,90	2,00	1,90				1,62	1,69	1,62	2	a
R Tech 1996	25	Raw milk	Lait cru				3,16	3,16	3,16				2,82	2,83	2,82				3,04	2,99	3,04	2	a
R Tech 1996	27	Raw milk	Lait cru				2,00	1,92	2,00				1,83	1,87	1,83				1,97	1,98	1,97	2	a
R Tech 1996	29	Raw milk	Lait cru				1,63	1,71	1,63				1,89	1,88	1,89				2,10	2,10	2,10	2	a
R Tech 1996	30	Raw milk	Lait cru				1,34		1,34													2	a
ADRIA 1997	22	Cheese (Comté)	Comté				2,50	2,45	2,50				2,46	2,34	2,46				2,65	2,56	2,65	2	b

DAIRY PRODUCTS																							
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				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	23	Cheese (Tomme)	Tomme				2,82	2,74	2,82				3,10	3,07	3,10				3,17	3,15	3,17	2	b
ADRIA 1997	24	Cheese (Bethmal)	Bethmal				3,80	3,83	3,80				4,04	4,05	4,04				4,04	4,05	4,04	2	b
ADRIA 1997	45	Raw milk camembert	Camembert lait cru				8,07	8,11	8,07				8,09	7,92	8,09				8,15	8,04	8,15	2	b
ADRIA 1997	46	Raw milk cheese	Reblochon fermier				6,77	6,75	6,77				6,64	6,64	6,64				6,65	6,71	6,65	2	b
ADRIA 2021	1726	Pastry with cream	Choux à la crème	10	>150	4600	3,66		3,66 N'	10	>150	4700	3,67		3,67 N'	10	>150	5100	3,71		3,71 N'	2	c
				100	46					100	47					100	51						
ADRIA 2021	1727	Rice pudding	Riz au lait maison	100	1	100	2,00		2,00*	100	0	<100	<2,00		<2,00	100	0	<100	<2,00		<2,00	2	c
				1000	0					1000	0					1000	0						
ADRIA 2021	1728	Rice pudding	Riz au lait nature traiteur	1000	0	<1000	<1000		<3,00	1000	0	<1000	<3,00		<3,00	1000	2	2000	3,30		3,30*	2	c
				10000	0					10000	0					10000	1						
ADRIA 2021	1729	Tiramisu	Tiramisu traiteur	10	0	<10	<1,00		<1,00	10	6	60	1,78		1,78 Ne	10	7	70	1,85		1,85 Ne	2	c
				100	0					100	0					100	0						
ADRIA 2021	1730	Tiramisu	Tiramisu au speculos	100	1	100	2,00		2,00*	100	0	<100	<2,00		<2,00	100	0	<100	<2,00		<2,00	2	c
				1000	0					1000	0					1000	0						
ADRIA 2021	1731	Panna cotta	Panna cotta fruits rouge	1000	0	<1000	<1000		<3,00	1000	0	<1000	<3,00		<3,00	1000	0	<1000	<3,00		<3,00	2	c
				10000	0					10000	0					10000	0						
ADRIA 2021	1920	Cheese with flower	Tomme aux fleurs	10	>150	6000	3,78		3,78 N'	10	>150	3600	3,56		3,56 N'	10	>150	5700	3,76		3,76 N'	2	b
				100	60					100	36					100	57						
ADRIA 2021	1921	Raw milk cheese	Saint Nectaire fermier	10	120	1200	3,08		3,08	10	21	230	2,36		2,36	10	33	350	2,54		2,54	2	b
				100	8					100	4					100	5						
ADRIA 2021	1922	Raw milk cheese	Roquefort	10	3	30	1,48		1,48*	10	3	30	1,48		1,48 Ne	10	12	110	2,04		2,04	2	b
				100	0					100	0					100	0						
ADRIA 2021	1923	Raw milk cheese	Tomme de Savoie	100	>150	120000	5,08		5,08 N'	10	>150	>15000	>4,18		>4,18	10	>150	>15000	>4,18		>4,18	2	b
				1000	116					100	>150					100	>150						
ADRIA 2021	2234	Raw milk camembert	Camembert de Normandie	100000	>150	44000000	7,64		7,64 N'	100000	>150	59000000	7,77		7,77 N'	100000	>150	69000000	7,84		7,84 N'	2	b
				1000000	44					1000000	59					1000000	69						
ADRIA 2021	2235	Raw milk camembert	Camembert de Normandie	100000	>150	69000000	7,84		7,84 N'	100000	>150	40000000	7,60		7,60 N'	100000	>150	52000000	7,72		7,72 N'	2	b
				1000000	69					1000000	40					1000000	52						
ADRIA 2021	2236	Organic feta cheese	Cube de feta bio	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	2	b
				100	0					100	0					100	0						
ADRIA 2021	2535	Rice pudding	Riz au lait	10	75	750	2,88		2,88	10	64	620	2,79		2,79	10	67	650	2,81		2,81	2	c
				100	7					100	4					100	4						
ADRIA 2021	2536	Rice pudding	Riz au lait	100	134	12000	4,08		4,08	100	95	9800	3,99		3,99	100	106	11000	4,04		4,04	2	c
				1000	3					1000	13					1000	13						
ADRIA 2021	2537	Pana cotta	Panacotta fruit rouge	1000	69	67000	4,83		4,83	1000	74	71000	4,85		4,85	1000	75	71000	4,85		4,85	2	c
				10000	5					10000	4					10000	3						
ADRIA 2021	2538	White cheese	Fromage blanc	100	>150	38000	4,58		4,58	1000	61	61000	4,79		4,79	1000	65	65000	4,81		4,81	2	c
				1000	38					10000	6					10000	6						
ADRIA 2021	2539	Dairy based dessert (tiramisu)	Verrine chocolat crème café, tiramisu	1000	49	47000	4,67		4,67	1000	36	35000	4,54		4,54	1000	37	36000	4,56		4,56	2	c
				10000	3					10000	3					10000	3						

SEAFOOD																							
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				Dilution	CFU/ plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/ plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/ plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2005	1253	Sardines	Sardines décongelées				7,32	7,28	7,32				7,30	7,11	7,30				7,32	7,18	7,32	3	a
ADRIA 2005	1254	Mussel	Moules				1,56	1,51	1,56				1,78	1,78	1,78				1,78	1,78	1,78	3	a
ADRIA 2005	1255	Trout	Truite				6,58	6,60	6,58				6,53	6,48	6,53				6,60	6,51	6,60	3	a
ADRIA 2005	1256	Fish filet	Merlan				5,43	5,53	5,43				5,51	5,54	5,51				5,54	5,54	5,54	3	a
ADRIIA 2006	183	Fich filet	Filet de sandre				2,40	2,32	2,40				2,54	2,41	2,54				2,64	2,53	2,64	3	a
ADRIIA 2006	188	Salmon	Saumon de Norvège				3,76	3,53	3,76				3,65	3,66	3,65				3,77	3,84	3,77	3	a
ADRIA 1997	56	Seafood cocktail	Cocktail fruits de mer				4,21	4,26	4,21				3,30	3,46	3,30				3,34	3,51	3,34	3	b
ADRIA 2005	1257	Peeled shrimps	Moules décortiquées				<1	<1	<1				<1	<1	<1				<1	<1	<1	3	b
ADRIA 2005	1259	Scallops	Coquille St Jacques				<1	<1	<1				<1	<1	<1				<1	<1	<1	3	b
ADRIA 2005	180	Crumbled tuna	Miettes de thon				2,15	2,08	2,15				2,00	2,00	2,00				2,11	2,04	2,11	3	b
ADRIA 2005	181	Crumbled tuna	Miettes de thon				2,32	2,18	2,32				2,18	2,23	2,18				2,23	2,28	2,23	3	b
ADRIA 2005	1258	Terrine of crayfish	Terrine d'écrevisse				4,40	4,41	4,40				4,90	4,00	4,90				4,71	4,82	4,71	3	c
ADRIA 2005	1260	Fish RTRH	Timbale de poissons				<1	<1	<1				<1	<1	<1				<1	<1	<1	3	c
ADRIA 2005	1261	Squid	Calamars				2,74	2,66	2,74				1,70	2,00	1,70				1,90	2,15	1,90	3	c
ADRIA 2005	1262	RTRH fish	Paupiette de poisson				<1	<1	<1				<1	<1	<1				<1	<1	<1	3	c
ADRIIA 2006	176	Rillettes of tuna	Rillettes de thon au poivre				2,32	2,26	2,32				2,11	2,11	2,11				2,23	2,26	2,23	3	c
ADRIIA 2006	177	Fish filet and vegetables	Colin aux petits légumes				2,96	2,93	2,96				2,63	2,70	2,63				2,82	2,91	2,82	3	c
ADRIIA 2006	178	Fish filet and vegetables	Colinette de colin aux petits légumes				3,08	3,04	3,08				2,43	2,59	2,43				3,08	2,97	3,08	3	c
ADRIIA 2006	179	Surimi	Surimi base				2,61	2,58	2,61				2,71	2,66	2,71				2,74	2,52	2,74	3	c
ADRIIA 2006	182	Surimi	Surimi				4,18	4,28	4,18				4,11	4,38	4,11				4,23	4,43	4,23	3	c
ADRIIA 2006	184	Rice salad with crabmeat	Salade de riz au crabe				3,85	4,04	3,85				3,78	4,15	3,78				3,85	4,15	3,85	3	c
ADRIIA 2006	185	Salmon RTRH food	Feuilleté de saumon				1,88	1,95	1,88				2,04	2,04	2,04				2,08	2,08	2,08	3	c
ADRIIA 2006	186	Crab terrine	Terrine de crabe				3,40	2,70	3,40				3,00	3,00	3,00				3,00	3,00	3,00	3	c
ADRIIA 2006	187	Codfish brandade	Brandade de morue				5,08	5,08	5,08				4,99	4,95	4,99				5,26	5,32	5,26	3	c

SEAFOOD																							
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				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	1676	Scallops	Noix de Saint Jacques	10	10	100	2		2,00	10	10	100	2,00		2,00	10	10	100	2,00		2,00	3	a
		100		1	100					0	100					0							
ADRIA 2021	1850	Crumbs of tuna	Miettes de thon naturel	100	5	500	2,70		2,70 Ne	100	0	<100	<2,00		<2,00	100	1	100	2,00		2,00*	3	b
				1000	1					1000	0					1000	0						
ADRIA 2021	1851	Crumbs of tuna	Miettes de thon albacore	1000	23	23000	4,36		4,36	1000	21	22000	4,34		4,34	1000	25	25000	4,40		4,40	3	b
				10000	2					10000	3					10000	3						
ADRIA 2021	1852	Peeled raw shrimps	Crevettes crues décortiquées	1000	16	16000	4,20		4,20	1000	23	23000	4,36		4,36	1000	26	25000	4,40		4,40	3	b
				10000	2					10000	2					10000	2						
ADRIA 2021	1853	Peeled raw gambas	Queue de gambas sauvages crues décortiquées	100	18	1800	3,26		3,26	100	74	6900	3,84		3,84	100	76	7100	3,85		3,85	3	b
				1000	2					1000	2					1000	2						
ADRIA 2021	1854	Seafood cocktail	Cocktail de fruits de mer (moules, calamars, crevettes)	1000	22	21000	4,32		4,32	1000	49	54000	4,73		4,73	1000	51	55000	4,74		4,74	3	b
				10000	1					10000	10					10000	10						
ADRIA 2021	1924	Fish filet	Filet d'églefin	10	14	130	2,11		2,11	10	9	90	1,95		1,95 Ne	10	19	200	2,30		2,30	3	a
				100	0					100	2					100	3						
ADRIA 2021	1925	Processed salmon	Poêlée de saumon	10	20	190	2,28		2,28	10	5	50	1,70		1,70 Ne	10	36	370	2,57		2,57	3	b
				100	1					100	1					100	5						
ADRIA 2021	1926	Fish filet	Filet de lieu jaune	10	4	40	1,60		1,60*	10	7	70	1,85		1,85 Ne	10	8	80	1,90		1,90 Ne	3	a
				100	0					100	0					100	0						
ADRIA 2021	3132	Fish filet	Filet d'Eglefin	10000	42	460000	5,66		5,66	10000	30	310000	5,49		5,49	10000	45	450000	5,65		5,65	3	a
				100000	9					100000	4					100000	5						
ADRIA 2021	3133	Fish filet	Filet de lieu noir	1000	13	13000	4,11		4,11	1000	17	16000	4,20		4,20	1000	20	20000	4,30		4,30	3	a
				10000	1					10000	1					10000	2						

VEGETABLES																							
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOGEN Petrifilm RCC Coliforms after 14 h incubation time						NEOGEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	53	Salad	Salade verte				4,66	4,72	4,66				4,54	4,36	4,54				4,58	4,41	4,58	4	a
ADRIA 1997	85	Carrot	Carotte crue				6,10	6,10	6,10				5,85	5,86	5,85				6,01	6,01	6,01	4	a
ADRIA 1997	86	Raw beetroot	Betterave rouge crue				2,91	2,98	2,91				2,85	2,81	2,85				2,91	2,89	2,91	4	a
ADRIA 1997	87	Raw potato	Pomme de terre crue				2,65	2,64	2,65				2,62	2,57	2,62				2,88	2,75	2,88	4	a
R Tech 1996	1	Raw vegetables	Végétaux crus				5,71	5,61	5,71				5,44	5,46	5,44				5,62	5,53	5,62	4	a
R Tech 1996	2	Raw vegetables	Végétaux crus				6,83	6,58	6,83				6,57	6,30	6,57				6,70	6,56	6,70	4	a
R Tech 1996	3	Raw vegetables	Végétaux crus				6,19	6,23	6,19				5,97	5,97	5,97				6,12	6,10	6,12	4	a
R Tech 1996	4	Raw vegetables	Végétaux crus				7,91	7,94	7,91				7,72	7,70	7,72				7,78	7,76	7,78	4	a
R Tech 1996	6	Raw vegetables	Végétaux crus				3,90	3,89	3,90				3,67	3,71	3,67				3,89	3,82	3,89	4	a
R Tech 1996	12	Raw vegetables	Végétaux crus				5,36	5,40	5,36				5,03	5,03	5,03				5,13	5,06	5,13	4	a
R Tech 1996	13	Raw vegetables	Végétaux crus				5,01	4,99	5,01				4,58	4,64	4,58				4,72	4,79	4,72	4	a
R Tech 1996	14	Raw vegetables	Végétaux crus				5,59	5,69	5,59				4,01	3,98	4,01				4,65	4,76	4,65	4	a
R Tech 1996	9	Flour	Farine				2,45	2,48	2,45				2,26	2,36	2,26				2,40	2,43	2,40	4	b
R Tech 1996	11	Flour	Farine				5,93	5,07	5,93				5,86	5,79	5,86				5,94	5,91	5,94	4	b
R Tech 1996	12	Flour	Farine				5,36	5,30	5,36				4,95	5,11	4,95				5,26	5,26	5,26	4	b
R Tech 1996	13	Flour	Farine				4,96	4,91	4,96				4,82	4,80	4,82				4,91	4,91	4,91	4	b
R Tech 1996	14	Flour	Farine				3,71	3,76	3,71				3,80	3,72	3,80				3,80	3,77	3,80	4	b
R Tech 1996	16	Flour	Farine				3,50	3,58	3,50				3,54	3,63	3,54				3,67	3,69	3,67	4	b
R Tech 1996	17	Flour	Farine				5,89	5,82	5,89										5,91	5,97	5,91	4	b
R Tech 1996	18	Flour	Farine				2,68	2,67	2,68				2,72	2,59	2,72				2,78	2,70	2,78	4	b
ADRIA 1997	68	Tabbouleh	Taboulé				4,56	4,63	4,56				4,61	4,75	4,61				4,67	4,82	4,67	4	c
ADRIA 1997	71	Stuffed zucchini	Courgette farcie				5,30	5,20	5,30				5,20	5,16	5,20				5,23	5,22	5,23	4	c
ADRIA 2021	1855	RTE carrot	Carottes épluchées coupées (prêtes à croquer)	10	>150	>15000	>4,18		>4,18	10	>150	>15000	>4,18		>4,18	10	>150	>15000	>4,18		>4,18	4	c
				100	>150					100	>150					100	>150						
ADRIA 2021	1856	RTE radish	Radis prêt à manger	100	113	11000	4,04		4,04	100	88	9000	3,95		3,95	100	146	15000	4,18		4,18	4	c
				1000	11					1000	11					1000	15						

VEGETABLES																							
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				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	1857	Brocoli purée	Purée de brocolis	100	5	500	2,70		2,70 Ne	100	2	200	2,30		2,30*	100	2	200	2,30		2,30*	4	c
				1000	1					1000	0					1000	0						
ADRIA 2021	1858	Asparagus purée	Purée d'asperges	100	16	1500	3,18		3,18	100	22	2300	3,36		3,36	100	30	3000	3,48		3,48	4	c
				1000	1					1000	3					1000	3						
ADRIA 2021	1859	Split peas purée	Purée de pois cassés	1000	5	5000	3,70		3,70 Ne	1000	5	5000	3,70		3,70 Ne	1000	5	5000	3,70		3,70 Ne	4	c
				10000	1					10000	0					10000	0						
ADRIA 2021	3134	RTRH vegetables galette	Gallettes boulgour sarrasin et poireaux	10	133	1300	3,11		3,11	10	117	1100	3,04		3,04	10	119	1200	3,08		3,08	4	c
				100	7					100	9					100	11						
ADRIA 2021	3135	RTRH vegetables galette	Gallettes de fèves et blé	100	>150	86000 N'	4,93 N'		4,93 N'	100	>150	75000 N'	4,88 N'		4,88 N'	100	>150	81000 N'	4,91 N'		4,91 N'	4	c
				1000	86					1000	75					1000	81						
ADRIA 2021	3136	Potatoes purée	Ecrasé de pomme de terre aux deux carottes	10	71	690	2,84		2,84	10	67	630	2,80		2,80	10	69	650	2,81		2,81	4	c
				100	5					100	2					100	2						
ADRIA 2021	3137	Carrot purée	Purée de carottes	100	55	5500	3,74		3,74	100	46	4300	3,63		3,63	100	48	4500	3,65		3,65	4	c
				1000	5					1000	1					1000	1						
ADRIA 2021	3138	Broccolis purée	Purée de brocolis	10000	104	100000 0	6,00		6,00	10000	91	910000	5,96		5,96	10000	101	100000 0	6,00		6,00	4	c
				100000	11					100000	9					100000	9						

EGG PRODUCTS AND COMPOSITE

Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOGEN Petrifilm RCC Coliforms after 14 h incubation time						NEOGEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	88	Liquid whole egg	Oeuf entier liquide				5,53	5,36	5,53				5,57	5,43	5,57				5,66	5,49	5,66	5	a
ADRIA 1997	89	Liquid whole egg	Oeuf entier liquide				3,69	3,74	3,69				3,95	3,83	3,95				3,98	3,94	3,98	5	a
R Tech 1996	2	Egg	Œufs				3,46	3,53	3,46				3,53	3,42	3,53				3,85	3,91	3,85	5	a
R Tech 1996	5	Egg	Œufs				3,62	3,54	3,62				3,71	3,49	3,71				4,13	4,14	4,13	5	a
R Tech 1996	6	Egg	Œufs				4,66	4,75	4,66				4,71	4,76	4,71							5	a
R Tech 1996	8	Egg	Œufs				3,49	3,60	3,49				3,53	3,49	3,53				4,48	4,41	4,48	5	a
R Tech 1996	9	Egg	Œufs				4,63	4,59	4,63				4,38	4,56	4,38				4,92	4,90	4,92	5	a
R Tech 1996	11	Egg	Œufs				3,46	3,56	3,46				3,41	3,42	3,41				3,89	3,92	3,89	5	a
R Tech 1996	12	Egg	Œufs				4,60	4,72	4,60				4,38	4,52	4,38				5,11	5,17	5,11	5	a
R Tech 1996	14	Egg	Œufs				3,51	3,54	3,51				3,59	3,54	3,59				3,85	3,70	3,85	5	a
R Tech 1996	15	Egg	Œufs				4,69	4,60	4,69				4,72	4,65	4,72							5	a
R Tech 1996	17	Egg	Œufs				3,21	3,37	3,21				3,19	3,07	3,19				3,24	3,07	3,24	5	a
R Tech 1996	18	Egg	Œufs				4,57	4,57	4,57				4,43	4,51	4,43				4,26	4,41	4,26	5	a
R Tech 1996	20	Egg	Œufs				2,78	2,86	2,78				3,24	3,16	3,24				3,24	3,16	3,24	5	a
R Tech 1996	22	Egg	Œufs				3,95	4,00	3,95				4,08	4,18	4,08				4,11	4,20	4,11	5	a
R Tech 1996	23	Egg	Œufs				2,98	2,99	2,98				3,07	3,00	3,07				3,07	3,00	3,07	5	a
R Tech 1996	26	Egg	Œufs				3,67	3,75	3,67				3,60	3,66	3,60				4,98	4,92	4,98	5	a
R Tech 1996	27	Egg	Œufs				4,45	4,52	4,45				4,73	4,62	4,73							5	a
R Tech 1996	29	Egg	Œufs				3,42	3,37	3,42				3,41	3,39	3,41				4,85	4,88	4,85	5	a
R Tech 1996	30	Egg	Œufs				4,20	4,23	4,20				4,04	4,08	4,04				4,28	4,40	4,28	5	a
ADRIA 1997	50	Pastry with creal	Chou à la crème				3,45	3,44	3,45				3,55	3,61	3,55				3,63	3,69	3,63	5	b
ADRIA 1997	51	Pastry	Eclair chantilly					2,32	2,32				2,13	2,26	2,13				2,19	2,39	2,19	5	b
ADRIA 1997	66	Pastry	Millefeuille Chantilly				4,44	4,32	4,44				4,44	4,45	4,44				4,57	4,58	4,57	5	b
ADRIA 1997	67	Pastry with creal	Chou à la crème				3,86	3,83	3,86				3,58	3,56	3,58				3,69	3,59	3,69	5	b

EGG PRODUCTS AND COMPOSITE

Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4832						Alternative method: NEOPEN Petrifilm RCC Coliforms after 14 h incubation time						NEOPEN Petrifilm RCC Coliforms after 24 h incubation time						Category	Type
				Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g	Dilution	CFU/plate	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	59	RTE salad	Salade camarguaise																2,10	2,21	2,10	5	c
ADRIA 1997	60	RTE salad	Salade du pecheur				3,50	3,50	3,50				3,12	3,14	3,12				3,19	3,23	3,19	5	c
ADRIA 1997	63	RTE salad	Timbale milanaise				4,79	4,88	4,79				4,93	4,93	4,93				4,95	4,94	4,95	5	c
ADRIA 1997	72	RTRH food	Bouchée à la reine										5,99	5,99	5,99				6,12	6,14	6,12	5	c
ADRIA 2021	1677	Pastry	Eclair à la vanille	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	5	b
				100	0					100	0					100	0						
ADRIA 2021	1860	RTRH food	Duo carottes et céleris, ail et ciboulette	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	10	0	<10	<1,00		<1,00	5	c
				100	0					100	0					100	0						
ADRIA 2021	1861	RTE salad with ham	Piémontaise au jambon	1000	24	24000	4,38		4,38	1000	18	18000	4,26		4,26	1000	18	18000	4,26		4,26	5	c
				10000	2					10000	2					10000	2						
ADRIA 2021	1862	RTE salad with mayonnaise and vegetables	Macédoine aux légumes	100	75	7500	3,88		3,88	100	81	7500	3,88		3,88	100	84	7700	3,89		3,89	5	c
				1000	6					1000	1					1000	1						
ADRIA 2021	1863	RTRH Asian food	Nouilles royales Bami Goreng (pates, crevettes, chou blanc, oignons)	10	3	30	1,48		1,48*	10	1	10	1,00		1,00*	10	4	40	1,60		1,60*	5	c
				100	0					100	0					100	0						
ADRIA 2021	1864	RTRH food	Tagliatelles à la carbonara	100	9	900	2,95		2,95 Ne	100	9	900	2,95		2,95 Ne	100	11	1500	3,18		3,18	5	c
				1000	1					1000	0					1000	6						
ADRIA 2021	2540	Pastry with vanilla	Eclair vanille	10	49	460	2,66		2,66	10	53	520	2,72		2,72	10	59	570	2,76		2,76	5	b
				100	2					100	4					100	4						
ADRIA 2021	2541	Yarrow pastry	Millefeuilles	100	132	14000	4,15		4,15	100	117	12000	4,08		4,08	100	131	13000	4,11		4,11	5	b
				1000	19					1000	15					1000	15						
ADRIA 2021	2542	Pudding pastry	Flan	1000	127	120000	5,08		5,08	1000	90	92000	4,96		4,96	1000	96	97000	4,99		4,99	5	b
				10000	7					10000	11					10000	11						
ADRIA 2021	3139	Lasagne with bolognese	Lasagnes à la bolognaise	10000	103	1000000	6,00		6,00	10000	103	1000000	6,00		6,00	10000	109	1100000	6,04		6,04	5	c
				100000	10					100000	7					100000	7						
ADRIA 2021	3140	RTRH beef meat	Hachis parmentier	1000	78	75000	4,88		4,88	1000	87	83000	4,92		4,92	1000	96	91000	4,96		4,96	5	c
				10000	5					10000	4					10000	4						
ADRIA 2021	4232	RTRH pork meat with vegetables	Petit salé aux lentilles vertes	1000	47	46000	4,66		4,66	1000	42	41000	4,61		4,61	1000	44	43000	4,63		4,63	5	c
				10000	4					10000	3					1000	3						
ADRIA 2021	4233	RTRH fish product (with purée)	Parmentier de poisson	10	0	<10	<1,00		<1,00	10	2	20	1,30		1,30*	10	2	20	1,30		1,30*	5	c
				100	0					100	1					100	1						
ADRIA 2021	4234	RTRH beef meat with tomato and pasta	Lasagne à la bolognaise	1000	129	129000	5,11		5,11	1000	90	91000	4,96		4,96	1000	95	97000	4,99		4,99	5	c
				10000	46					10000	10					1000	12						

MEAT PRODUCTS																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	48	Poultry meat	Escalope dinde		4,04		4,04					2,42	2,57	2,42	1	a
ADRIA 1997	62	Beef meat	Langue de boeuf		2,38		2,38								1	a
ADRIA 1997	76	Veal meat	Escalopes de veau		2,86		2,86								1	a
ADRIA 1997	90	Chicken meat	Pilon de poulet		5,38		5,38					4,26	4,24	4,26	1	a
ADRIA 2006	45	Ground veal meat	Escalope de veau haché		4,66	4,66	4,66					4,08	3,95	4,08	1	a
ADRIA 2006	46	Ground veal meat	Escalope de veau haché		2,36	2,36	2,36					3,78	3,48	3,78	1	a
ADRIA 2006	47	Ground veal meat	Escalope de veau haché		2,63	2,36	2,63					2,70	3,20	2,70	1	a
ADRIA 2006	48	Carcass veal meat	Carcasse de veau		5,04	3,97	5,04					3,51	3,63	3,51	1	a
ADRIA 2006	49	Carcass veal meat	Carcasse de veau		1,36	1,36	1,36					1,60	1,60	1,60	1	a
ADRIA 2006	50	Poultry meat	Viande blanche		4,04	5,04	4,04					3,38	3,32	3,38	1	a
ADRIA 2006	51	Poultry meat	VSM		4,04	4,04	4,04					2,68	2,78	2,68	1	a
ADRIA 2006	52	Poultry meat	VSM		3,97	3,97	3,97					3,08	3,04	3,08	1	a
ADRIA 2006	53	Hen meat	Morceaux de poule		2,36	2,63	2,36					3,08	2,90	3,08	1	a
ADRIA 2006	54	Veal meat	Collier de veau		3,20	2,97	3,20					3,23	3,18	3,23	1	a
ADRIA 2006	55	Veal meat	Collier de veau		2,97	3,38	2,97					3,52	3,46	3,52	1	a
ADRIA 2006	56	Ground beef meat	Steak haché		2,58	4,66	2,58					3,68	3,71	3,68	1	a
R Tech 1996	1	Ground beef meat	Boeuf haché		2,66		2,66					3,04	2,91	3,04	1	a
R Tech 1996	2	Ground beef meat	Boeuf haché		3,04		3,04					4,04	4,08	4,04	1	a
R Tech 1996	3	Ground beef meat	Boeuf haché		2,66		2,66					3,46	3,41	3,46	1	a
R Tech 1996	4	Ground beef meat	Boeuf haché		3,04		3,04					3,24	3,19	3,24	1	a
R Tech 1996	8	Ground beef meat	Boeuf haché		1,18		1,18								1	a
R Tech 1996	9	Ground beef meat	Boeuf haché		1,97		1,97					2,36	2,51	2,36	1	a
R Tech 1996	10	Ground beef meat	Boeuf haché		2,66		2,66					2,95	2,96	2,95	1	a
R Tech 1996	12	Ground beef meat	Boeuf haché		3,04		3,04					2,57	2,60	2,57	1	a

MEAT PRODUCTS																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
R Tech 1996	20	Ground beef meat	Boeuf haché		1,32		1,32					2,37	2,46	2,37	1	a
R Tech 1996	24	Ground beef meat	Boeuf haché		3,04		3,04					2,74	2,86	2,74	1	a
R Tech 1996	25	Ground beef meat	Boeuf haché		2,66		2,66					2,86	2,86	2,86	1	a
R Tech 1996	27	Ground beef meat	Boeuf haché		3,04		3,04					2,44	2,66	2,44	1	a
R Tech 1996	31	Ground beef meat	Boeuf haché		3,66		3,66					3,44	3,39	3,44	1	a
R Tech 1996	32	Ground beef meat	Boeuf haché		4,04		4,04					3,68	3,61	3,68	1	a
R Tech 1996	36	Ground beef meat	Boeuf haché		1,95		1,95						2,13	0,00	1	a
R Tech 1996	39	Ground beef meat	Boeuf haché		2,45		2,45					4,08	4,15	4,08	1	a
ADRIIA 2006	57	Sausage meat	Saucisse		1,97	1,63	1,97					1,95	1,85	1,95	1	c
ADRIA 2021	1724	RTE chicken meat	Emincés de poulet rôti au four	460	2,66		2,66	10 100	17 2	173	170	2,23		2,23	1	c
ADRIA 2021	1725	RTE chicken meat	Aiguillettes de poulet rôti	9300	3,97		3,97	100 1000	83 2	7727	7700	3,89		3,89	1	c
ADRIA 2021	1732	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	7400	3,87		3,87	1000 10000	4 0	4000	4000	3,60		3,60 Ne	1	c
ADRIA 2021	1733	RTRH pork meat	Palette de porc supérieure	9200	3,96		3,96	1000 10000	13 0	11818	12000	4,08		4,08	1	c
ADRIA 2021	1734	RTRH pork meat	Petit salé de porc supérieur	<31	<1,49		<1,49	10 100	50 7	518	520	2,72		2,72	1	c
ADRIA 2021	1735	RTRH beef meat	Joue de bœuf fondante et son jus façon carbonade	<310	<2,49		<2,49	100 1000	18 2	1818	1800	3,26		3,26	1	c
ADRIA 2021	1736	RTRH lamb meat	Affranchi ovin (agneau)	150000	5,18		5,18	10000 100000	23 2	227273	230000	5,36		5,36	1	c
ADRIA 2021	1737	RTRH lamb meat	Poitrine d'agneau et sa sauce	>1100000	>6,04		>6,04	100000 1000000	0 0	<100000	<100000	<5,00		<5,00	1	c
ADRIA 2021	1738	RTRH duck meat	Viande de canard effiloché prêt à réchauffer	460	2,66		2,66	10 100	39 3	382	380	2,58		2,58	1	c
ADRIA 2021	1918	Merguez	Merguez	24000	4,38		4,38								1	b
ADRIA 2021	1919	Sausage	Saucisse nature	430	2,63		2,63								1	b
ADRIA 2021	2237	Duck meat	Viande de canard	1100	3,04		3,04	10 100	62 4	600	600	2,78		2,78	1	a

DAIRY PRODUCTS																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	84	Raw milk	Lait cru		2,38		2,38					2,58	2,59	2,58	2	a
R Tech 1996	3	Raw milk	Lait cru		1,36		1,36					1,91	1,98	1,91	2	a
R Tech 1996	4	Raw milk	Lait cru		1,18		1,18					1,49	1,49	1,49	2	a
R Tech 1996	5	Raw milk	Lait cru		1,63		1,63					1,73	1,78	1,73	2	a
R Tech 1996	6	Raw milk	Lait cru		2,18		2,18					2,67	2,49	2,67	2	a
R Tech 1996	8	Raw milk	Lait cru		3,04		3,04					2,79	2,89	2,79	2	a
R Tech 1996	9	Raw milk	Lait cru		0,85		0,85					1,21		1,21	2	a
R Tech 1996	11	Raw milk	Lait cru		1,97		1,97						1,70	1,70	2	a
R Tech 1996	12	Raw milk	Lait cru		2,18		2,18					1,67	1,57	1,67	2	a
R Tech 1996	13	Raw milk	Lait cru		2,66		2,66					2,45	2,46	2,45	2	a
R Tech 1996	24	Raw milk	Lait cru		0,97		0,97					1,16	1,21	1,16	2	a
R Tech 1996	27	Raw milk	Lait cru		2,04		2,04					1,88	1,91	1,88	2	a
R Tech 1996	29	Raw milk	Lait cru		2,04		2,04					2,06	2,04	2,06	2	a
ADRIA 1997	22	Cheese (Comté)	Comté		2,38		2,38					2,56	2,48	2,56	2	b
ADRIA 1997	23	Cheese (Tomme)	Tomme		2,63		2,63					3,16	3,14	3,16	2	b
ADRIA 1997	24	Cheese (Bethmal)	Bethmal		3,66		3,66					4,01	4,03	4,01	2	b
ADRIA 2021	1726	Pastry with cream	Choux à la crème	>1100	>3,04		>3,04	10	>150	5100	5100	3,71		3,71 N'	2	c
								100	51							
ADRIA 2021	1727	Rice pudding	Riz au lait maison	<310	<2,49		<2,49	100	0	<100	<100	<2,00		<2,00	2	c
								1000	0							
ADRIA 2021	1728	Rice pudding	Riz au lait nature traiteur	<3100	<3,49		<3,49	1000	2	2000	2000	3,30		3,30*	2	c
								10000	1							
ADRIA 2021	1729	Tiramisu	Tiramisu traiteur	3,6	0,56		0,56	10	7	70	70	1,85		1,85 Ne	2	c
								100	0							
ADRIA 2021	1730	Tiramisu	Tiramisu au spéculos	<310	<2,49		<2,49	100	0	<100	<100	<2,00		<2,00	2	c
								1000	0							
ADRIA 2021	1731	Panna cotta	Panna cotta fruits rouge	<310	<2,49		<2,49	1000	0	<1000	<1000	<3,00		<3,00	2	c
								10000	0							
ADRIA 2021	1920	Cheese with flower	Tomme aux fleurs	1100	3,04		3,04	10	>150	1500	1500	3,18		3,18 N'	2	b
								100	15							
ADRIA 2021	1921	Raw milk cheese	Saint Nectaire fermier	460	2,66		2,66	10	24	255	260	2,41		2,41	2	b
								100	4							

DAIRY PRODUCTS																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	1922	Raw milk cheese	Roquefort	43	1,63		1,63	10	2	20	20	1,30		1,30*	2	b
ADRIA 2021	1923	Raw milk cheese	Tomme de Savoie	43	1,63		1,63	10	>150	>15000	>15000	>4,18		>4,18	2	b
ADRIA 2021	2234	Raw milk camembert	Camembert de Normandie	>1100000	>6,04		>6,04	100000	>150	69000000	69000000	7,84		7,84 N'	2	b
ADRIA 2021	2235	Raw milk camembert	Camembert de Normandie	>1100000	>6,04		>6,04	100000	>150	52000000	52000000	7,72		7,72 N'	2	b
ADRIA 2021	2236	Organic feta cheese	Cube de feta bio	<3,1	<0,49		<0,49	10	0	<10	<10	<1,00		<1,00	2	b
ADRIA 2021	2535	Rice pudding	Riz au lait	1100	3,04		3,04	10	67	645	650	2,81		2,81	2	c
ADRIA 2021	2536	Rice pudding	Riz au lait	24000	4,38		4,38	100	106	10818	11000	4,04		4,04	2	c
ADRIA 2021	2537	Pana cotta	Panacotta fruit rouge	24000	4,38		4,38	1000	75	70909	71000	4,85		4,85	2	c
ADRIA 2021	2538	White cheese	Fromage blanc	>110000	>5,04		>5,04	1000	65	64545	65000	4,81		4,81	2	c
ADRIA 2021	2539	Dairy based dessert (tiramisu)	Verrine chocolat crème café, tiramisu	93000	4,97		4,97	1000	37	36364	36000	4,56		4,56	2	c

SEAFOOD																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	57	Mussel	Moules		2,97		2,97					2,74	2,66	2,74	3	a
ADRIA 1997	79	Prawns	Gambas		1,38		1,38								3	a
ADRIIA 2006	183	Fich filet	Filet de sandre		2,63	2,97	2,63					2,54	2,45	2,54	3	a
ADRIIA 2006	188	Salmon	Saumon de norvège		3,18	3,38	3,18					3,04	3,04	3,04	3	a
ADRIA 1997	56	Seafood cocktail	Cocktail fruits de mer		0,36		0,36					3,30	3,51	3,30	3	b
ADRIIA 2006	180	Crumbled tuna	Miettes de thon		1,88	1,63	1,88					2,08	2,00	2,08	3	b
ADRIIA 2006	181	Crumbled tuna	Miettes de thon		1,63	1,36	1,63					2,11	2,26	2,11	3	b
ADRIIA 2006	176	Rillettes of tuna	Rillettes de thon au poivre		2,18	1,97	2,18					1,90	2,00	1,90	3	c
ADRIIA 2006	177	Fish filet and vegetables	Colin aux petits légumes		3,66	2,63	3,66					2,43	2,59	2,43	3	c
ADRIIA 2006	178	Fish filet and vegetables	Colinette de colin aux petits légumes		3,08	2,63	3,08					2,04	1,60	2,04	3	c
ADRIIA 2006	179	Surimi	Surimi base		2,63	2,18	2,63					2,69	2,48	2,69	3	c
ADRIIA 2006	182	Surimi	Surimi		2,63	4,38	2,63					4,18	4,30	4,18	3	c
ADRIIA 2006	184	Rice salad with crabmeat	Salade de riz au crabe		4,18	4,63	4,18					3,48	4,15	3,48	3	c
ADRIIA 2006	185	Salmon RTRH food	Feuilleté de saumon		2,18	1,88	2,18					2,08	2,04	2,08	3	c
ADRIIA 2006	186	Crab terrine	Terrine de crabe		3,97	3,63	3,97					3,00	3,00	3,00	3	c
ADRIIA 2006	187	Codfish brandade	Brandade de morue		>5,04	>5,04	>5,04					5,04	5,04	5,04	3	c
ADRIA 2021	1676	Scallops	Noix de Saint Jacques	0,92	-0,04		-0,04	10	5	50	50	1,70		1,70 Ne	3	a
		100						0								
ADRIA 2021	1850	Crumbs of tuna	Miettes de thon naturel	230	2,36		2,36	100	1	100	100	2,00		2,00*	3	b
								1000	0							
ADRIA 2021	1851	Crumbs of tuna	Miettes de thon albacore	46000	4,66		4,66	1000	25	25455	25000	4,40		4,40	3	b
								10000	3							
ADRIA 2021	1852	Peeled raw shrimps	Crevettes crues décortiquées	24000	4,38		4,38	1000	26	25455	25000	4,40		4,40	3	b
								10000	2							
ADRIA 2021	1853	Peeled raw gambas	Queue de gambas sauvages crues décortiquées	36	1,56		1,56	100	0	<100	<100	<2,00		<2,00	3	b
								1000	0							
ADRIA 2021	1854	Seafood cocktail	Cocktail de fruits de mer (moules, calamars, crevettes)	<310	<2,49		<2,49 ND (no positive tube)	1000	0	<1000	<1000	<3,00		<3,00	3	b
								10000	0							
ADRIA 2021	1924	Fish filet	Filet d'églefin	7,2	0,86		0,86	10	4	40	40	1,60		1,60*	3	a
								100	0							
ADRIA 2021	1925	Processed salmon	Poêlée de saumon	9,2	0,96		0,96	10	0	<10	<10	<1,00		<1,00	3	b
								100	0							

SEAFOOD																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	1926	Fish filet	Filet de lieu jaune	3,6	0,56		0,56	10	1	10	10	1,00		1,00*	3	a
ADRIA 2021	3132	Fish filet	Filet d'Eglefin	1100000	6,04		6,04	10000	45	454545	450000	5,65		5,65	3	a
ADRIA 2021	3133	Fish filet	Filet de lieu noir	110000	5,04		5,04	100000	5							
								1000	20	20000	20000	4,30		4,30	3	a
								10000	2							

VEGETABLES																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	53	Salad	Salade verte		2,97		2,97					2,80	3,07	2,80	4	a
ADRIA 1997	86	Raw beetroot	Betterave rouge crue		2,63		2,63					2,63	2,49	2,63	4	a
ADRIA 1997	87	Raw potato	Pomme de terre crue		2,63		2,63					2,71	2,66	2,71	4	a
R Tech 1996	2	Raw vegetables	Végétaux crus		7,04		7,04					6,42	6,21	6,42	4	a
R Tech 1996	3	Raw vegetables	Végétaux crus		6,32		6,32					5,60	5,39	5,60	4	a
R Tech 1996	12	Raw vegetables	Végétaux crus		4,66		4,66					3,44	3,86	3,44	4	a
R Tech 1996	13	Raw vegetables	Végétaux crus		5,04		5,04					3,74	3,91	3,74	4	a
R Tech 1996	9	Flour	Farine		1,38		1,38					1,60	1,48	1,60	4	b
R Tech 1996	12	Flour	Farine		4,04		4,04					3,44	3,45	3,44	4	b
R Tech 1996	13	Flour	Farine		3,38		3,38								4	b
R Tech 1996	14	Flour	Farine		3,46		3,46					3,74	3,74	3,74	4	b
R Tech 1996	17	Flour	Farine		2,97		2,97					5,46	5,59	5,46	4	b
R Tech 1996	18	Flour	Farine		1,97		1,97					2,70	2,56	2,70	4	b
ADRIA 1997	68	Tabbouleh	Taboulé		4,66		4,66					4,37	4,50	4,37	4	c
ADRIA 1997	71	Stuffed zucchini	Courgette farcie		5,04		5,04					4,46	4,57	4,46	4	c
ADRIA 2021	1855	RTE carrot	Carottes épluchées coupées (prêtes à croquer)	2400	3,38		3,38	10	>150	>15000	>15000	>4,18		>4,18	4	c
								100	>150							
ADRIA 2021	1856	RTE radish	Radis prêt à manger	750	2,88		2,88	100	4	400	400	2,60		2,60*	4	c
								1000	0							
ADRIA 2021	1857	Broccoli purée	Purée de brocolis	36	1,56		1,56	100	2	200	200	2,30		2,30*	4	c
								1000	0							
ADRIA 2021	1858	Asparagus purée	Purée d'asperges	<31	<1,49		<1,49 ND (no positive tube)	100	30	3000	3000	3,48		3,48	4	c
								1000	3							
ADRIA 2021	1859	Split peas purée	Purée de pois cassés	<0,31	<-0,51		<-0,51 ND (no positive tube)	1000	5	5000	5000	3,70		3,70 Ne	4	c
								10000	0							
ADRIA 2021	3134	RTRH vegetables galette	Gallettes boulgour sarrasin et poireaux	460	2,66		2,66	10	119	1182	1200	3,08		3,08	4	c
								100	11							
ADRIA 2021	3135	RTRH vegetables galette	Gallettes de fèves et blé	46000	4,66		4,66	100	>150	81000	81000 N'	4,91		4,91	4	c
								1000	81							
ADRIA 2021	3136	Potatoes purée	Ecrasé de pomme de terre aux deux carottes	240	2,38		2,38	10	69	645	650	2,81		2,81	4	c
								100	2							

VEGETABLES																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	3137	Carrot purée	Purée de carottes	1100	3,04		3,04	100	48	4455	4500	3,65		3,65	4	c
								1000	1							
ADRIA 2021	3138	Broccolis purée	Purée de brocolis	>110000	>5,04		>5,04	10000	101	1000000	1000000	6,00		6,00	4	c
								100000	9							

EGG PRODUCTS AND COMPOSITE																
Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 1997	89	Liquid whole egg	Oeuf entier liquide		5,04		5,04					3,30	3,30	3,30	5	a
ADRIA 2005	1169	Not pasteurised liquid egg	Coule d'œuf non pasteurisée		1,63	1,97	1,63					2,04	1,78	2,04	5	a
ADRIA 2005	1170	Not pasteurised liquid egg	Coule d'œuf non pasteurisée		1,97	2,32	1,97					2,34	2,56	2,34	5	a
ADRIA 2005	1171	Not pasteurised liquid egg	Coule d'œuf non pasteurisée		1,63	1,97	1,63					2,26	2,38	2,26	5	a
ADRIA 2005	1172	Not pasteurised liquid egg	Coule d'œuf non pasteurisée		2,97	2,18	2,97					2,40	2,52	2,40	5	a
R Tech 1996	14	Egg	Œufs		2,70		2,70					3,28	3,30	3,28	5	a
R Tech 1996	17	Egg	Œufs		2,70		2,70					3,00	2,74	3,00	5	a
R Tech 1996	20	Egg	Œufs		2,40		2,40					2,86	2,86	2,86	5	a
R Tech 1996	23	Egg	Œufs		2,70		2,70					2,86	2,86	2,86	5	a
R Tech 1996	30	Egg	Œufs		3,00		3,00					3,70	3,60	3,70	5	a
ADRIA 1997	50	Pastry with creal	Chou à la crème		0,97		0,97					1,96		1,96	5	b
ADRIA 1997	51	Pastry	Eclair chantilly		1,38		1,38								5	b
ADRIA 1997	66	Pastry	Millefeuille Chantilly		4,38		4,38					4,26	4,41	4,26	5	b
ADRIA 1997	67	Pastry with creal	Chou à la crème		3,63		3,63					3,50	3,48	3,50	5	b
ADRIA 1997	60	RTE salad	Salade du pêcheur		3,38		3,38					2,97	2,99	2,97	5	c
ADRIA 2021	1677	Pastry	Eclair à la vanille	<0,31	<-0,51		<-0,51	10 100	0 0	<10	<10	<1,00		<1,00	5	b
ADRIA 2021	1860	RTRH food	Duo carottes et céleris, ail et ciboulette	<0,31	<-0,51		<-0,51 ND (no positive tube)	10 100	0 0	<10	<10	<1,00		<1,00	5	c
ADRIA 2021	1861	RTE salad with ham	Piémontaise au jambon	2400	3,38		3,38	1000 10000	18 2	18182	18000	4,26		4,26	5	c
ADRIA 2021	1862	RTE salad with mayonaise and vegetables	Macédoine aux légumes	430	2,63		2,63	100 1000	84 1	8400	8400	3,92		3,92	5	c
ADRIA 2021	1863	RTRH asian food	Nouilles royales Bami Goreng (pates, crevettes, chou blanc, oignons)	43	1,63		1,63	10 100	4 0	40	40	1,60		1,60*	5	c
ADRIA 2021	1864	RTRH food	Tagliatelles à la carbonara	930	2,97		2,97	100 1000	11 0	1000	1000	3,00		3,00	5	c
ADRIA 2021	2540	Pastry with vanilla	Eclair vanille	460	2,66		2,66	10 100	59 4	573	570	2,76		2,76	5	b
ADRIA 2021	2541	Yarrow pastry	Millefeuilles	>11000	>4,04		>4,04	100 1000	131 15	13273	13000	4,11		4,11	5	b
ADRIA 2021	2542	Pudding pastry	Flan	110000	5,04		5,04	1000 10000	96 11	97273	97000	4,99		4,99	5	b

EGG PRODUCTS AND COMPOSITE

Year of analysis	Sample No	Product	Product (French name)	Reference method: ISO 4831				NEOGEN Petrifilm RCC 24h Gas producing coliforms after 24 h incubation time							Category	Type
				CFU/g	Log MPN Rep 1	Log MPN rep2	Log MPN	Dilution	CFU/plate	CFU/g	CFU/g	Log CFU/g Rep 1	Log CFU/g Rep 2	Log CFU/g		
ADRIA 2021	3139	Lasagne with bolognese	Lasagnes à la bolognaise	<310	<2,5		<2,5	10000	109	1054545	1100000	6,04		6,04	5	c
								100000	7							
ADRIA 2021	3140	RTRH beef meat	Hachis parmentier	<31	<1,5		<1,5	1000	95	90000	90000	4,95		4,95	5	c
								10000	4							
ADRIA 2021	4232	RTRH pork meat with vegetables	Petit salé aux lentilles vertes	46000	4,66		4,66	1000	44	42727	43000	4,63		4,63	5	c
								10000	3							
ADRIA 2021	4233	RTRH fish product (with purée)	Parmentier de poisson	9,2	0,96		0,96	10	2	27	20	1,30		1,30*	5	c
								100	1							
ADRIA 2021	4234	RTRH beef meat with tomato and pasta	Lasagne à la bolognaise	150000	5,18		5,18	1000	95	97273	97000	4,99		4,99	5	c
								10000	12							

Appendix E - Accuracy profile study: raw data

Coliforms after 14 h incubation time

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	14h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Ground beef Batch 1 Aerobic mesophilic flora: CFU/g	Enterobacter cloacae 128	1	4137	10	26	280	2,45	10	22	220	2,34
				100	5			100	2		
			4138	10	27	260	2,41	10	24	260	2,41
				100	1			100	4		
			4139	10	29	280	2,45	10	26	260	2,41
				100	2			100	3		
		2	4140	10	25	260	2,41	10	30	320	2,51
				100	4			100	5		
			4141	10	37	360	2,56	10	21	230	2,36
				100	3			100	4		
			4142	100	83	8500	3,93	100	81	7900	3,90
				1000	10			1000	6		
		3	4143	100	98	9900	4,00	100	73	7000	3,85
				1000	11			1000	4		
			4144	100	94	9200	3,96	100	71	6900	3,84
				1000	7			1000	5		
			4145	100	96	9300	3,97	100	90	8600	3,93
				1000	6			1000	5		
Ground beef Aerobic mesophilic flora: CFU/g	Enterobacter cloacae 128	1	4146	100	111	10000	4,00	100	68	6500	3,81
				1000	2			1000	3		
			4147	1000	124	130000	5,11	1000	87	94000	4,97
				10000	14			10000	16		
			4148	1000	85	90000	4,95	1000	99	96000	4,98
				10000	14			10000	7		
		2	4149	1000	109	110000	5,04	1000	74	72000	4,86
				10000	8			10000	5		
			4150	1000	70	68000	4,83	1000	78	75000	4,88
				10000	5			10000	4		
			4151	1000	73	74000	4,87	1000	84	85000	4,93
				10000	8			10000	9		
		3	4152	10	39	370	2,57	10	98	960	2,98
				100	2			100	8		
			4153	10	33	310	2,49	10	17	190	2,28
				100	1			100	4		
			4154	10	32	310	2,49	10	25	260	2,41
				100	2			100	3		
Ground beef Aerobic mesophilic flora: CFU/g	Enterobacter cloacae 128	1	4155	10	82	770	2,89	10	23	230	2,36
				100	3			100	2		
			4156	10	104	1000	3,00	10	33	380	2,58
				100	9			100	9		
			4157	100	81	7800	3,89	100	85	8600	3,93
				1000	5			1000	10		
		2	4158	100	102	9600	3,98	100	77	7700	3,89
				1000	4			1000	8		
			4159	100	98	9500	3,98	100	64	6700	3,83
				1000	6			1000	10		
			4160	100	90	9200	3,96	100	82	8000	3,90
				1000	11			1000	6		
		3	4161	100	75	7900	3,90	100	79	7800	3,89
				1000	12			1000	7		
			4162	1000	72	72000	4,86	1000	67	70000	4,85
				10000	7			10000	10		
			4163	1000	87	85000	4,93	1000	71	71000	4,85
				10000	7			10000	7		
		3	4164	1000	77	78000	4,89	1000	61	59000	4,77
				10000	9			10000	4		
			4165	1000	87	85000	4,93	1000	70	69000	4,84
				10000	6			10000	6		
		3	4166	1000	66	69000	4,84	1000	53	55000	4,74
				10000	10			10000	7		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g)	log CFU/g	14h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Pasteurised milk Batch 1 Aerobic mesophilic flora: <10 CFU/g	C. sakazakii Ad2418	1	2238	10	18	180	2,26	10	6	60	1,78 Ne
				100	2			100	1		
			2239	10	21	210	2,32	10	14	150	2,18
				100	2			100	2		
			2240	10	20	190	2,28	10	13	130	2,11
				100	1			100	1		
			2241	10	17	170	2,23	10	12	120	2,08
				100	2			100	1		
			2242	10	12	110	2,04	10	13	140	2,15
				100	0			100	2		
		2	2243	100	44	4600	3,66	100	34	3400	3,53
				1000	7			1000	3		
			2244	100	54	5500	3,74	100	46	5000	3,70
				1000	6			1000	9		
			2245	100	48	4500	3,65	100	58	5400	3,73
				1000	2			1000	1		
			2246	100	37	3900	3,59	100	45	4400	3,64
				1000	6			1000	3		
			2247	100	45	4300	3,63	100	42	4000	3,60
				1000	2			1000	2		
		3	2248	1000	52	55000	4,74	1000	39	36000	4,56
				10000	8			10000	1		
			2249	1000	60	59000	4,77	1000	46	43000	4,63
				10000	5			10000	1		
			2250	1000	58	62000	4,79	1000	62	59000	4,77
				10000	10			10000	3		
			2251	1000	61	59000	4,77	1000	49	48000	4,68
				10000	4			10000	4		
			2252	1000	54	54000	4,73	1000	49	50000	4,70
				10000	5			10000	6		
Pasteurised milk Aerobic mesophilic flora: <10 CFU/g	C. sakazakii Ad2418	1	2253	10	13	140	2,15	10	9	90	1,95 Ne
				100	2			100	0		
			2254	10	11	120	2,08	10	20	180	2,26
				100	2			100	0		
			2255	10	9	90	1,95 Ne	10	7	70	1,85 Ne
				100	1			100	4		
			2256	10	12	120	2,08	10	9	90	1,95 Ne
				100	1			100	1		
			2257	10	10	100	2,00	10	6	60	1,78 Ne
				100	1			100	1		
		2	2258	100	38	3900	3,59	100	32	3200	3,51
				1000	5			1000	3		
			2259	100	59	5900	3,77	100	25	2800	3,45
				1000	6			1000	6		
			2260	100	54	5300	3,72	100	30	2900	3,46
				1000	4			1000	2		
			2261	100	65	6600	3,82	100	25	2600	3,41
				1000	8			1000	4		
			2262	100	50	5100	3,71	100	51	4900	3,69
				1000	6			1000	3		
		3	2263	1000	54	53000	4,72	1000	42	41000	4,61
				10000	4			10000	3		
			2264	1000	60	59000	4,77	1000	49	53000	4,72
				10000	5			10000	9		
			2265	1000	45	43000	4,63	1000	38	38000	4,58
				10000	2			10000	0		
			2266	1000	49	50000	4,70	1000	31	35000	4,54
				10000	6			10000	7		
			2267	1000	56	54000	4,73	1000	46	45000	4,65
				10000	3			10000	4		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCCTotal coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	14h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Raw fish filet Batch 1 Aerobic mesophilic flora: 2,0.10 ² CFU/g	E. coli Ad228	1	2949	10	36	650	2,81	10	12	120	2,08
				100	3			100	1		
			2950	10	21	230	2,36	10	18	190	2,28
				100	4			100	3		
			2951	10	27	320	2,51	10	19	190	2,28
				100	8			100	2		
			2952	10	24	250	2,40	10	29	260	2,41
				100	3			100	0		
			2953	10	15	180	2,26	10	18	160	2,20
				100	5			100	0		
		2	2954	100	34	3700	3,57	100	56	5400	3,73
				1000	7			1000	3		
			2955	100	57	5500	3,74	100	44	4200	3,62
				1000	3			1000	2		
			2956	100	52	4900	3,69	100	39	3800	3,58
				1000	2			1000	3		
			2957	100	70	6600	3,82	100	50	5200	3,72
				1000	3			1000	7		
			2958	100	59	6300	3,80	100	42	4000	3,60
				1000	11			1000	2		
		3	2959	1000	58	65000	4,81	1000	43	44000	4,64
				10000	13			10000	5		
			2960	1000	41	40000	4,60	1000	30	31000	4,49
				10000	3			10000	4		
			2961	1000	41	39000	4,59	1000	40	38000	4,58
				10000	2			10000	2		
			2962	1000	35	34000	4,53	1000	44	43000	4,63
				10000	2			10000	3		
			2963	1000	21	20000	4,30	1000	31	32000	4,51
				10000	1			10000	4		
Raw fish filet Aerobic mesophilic flora: 1,0.10 ⁶ CFU/g	E. coli Ad228	1	2964	10	51	470	2,67	10	15	160	2,20
				100	1			100	3		
			2965	10	20	220	2,34	10	17	160	2,20
				100	4			100	0		
			2966	10	25	250	2,40	10	18	190	2,28
				100	2			100	3		
			2967	10	5	50	1,70 Ne	10	19	180	2,26
				100	1			100	1		
			2968	10	7	70	1,85 Ne	10	19	170	2,23
				100	2			100	0		
		2	2969	100	85	8300	3,92	100	41	4400	3,64
				1000	6			1000	7		
			2970	100	45	4500	3,65	100	47	4500	3,65
				1000	4			1000	2		
			2971	100	72	7200	3,86	100	38	3800	3,58
				1000	7			1000	4		
			2972	100	45	4300	3,63	100	45	4500	3,65
				1000	2			1000	5		
			2973	100	65	6500	3,81	100	54	5400	3,73
				1000	6			1000	5		
		3	2974	1000	120	120000	5,08	1000	77	76000	4,88
				10000	9			10000	7		
			2975	1000	76	74000	4,87	1000	64	66000	4,82
				10000	5			10000	9		
			2976	1000	76	75000	4,88	1000	64	65000	4,81
				10000	6			10000	7		
			2977	1000	66	67000	4,83	1000	64	59000	4,77
				10000	8			10000	1		
			2978	1000	104	100000	5,00	1000	60	58000	4,76
				10000	8			10000	4		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	14h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Green peas Batch 1 Aerobic mesophilic flora: 1,4.10 ² CFU/g	Enterobacter intermedius 60	1	1961	10	18	180	2,26	10	7	70	1,85
				100	2			100	2		Ne
			1962	10	22	220	2,34	10	19	170	2,23
				100	2			100	0		
			1963	10	22	200	2,30	10	20	180	2,26
				100	0			100	0		
		2	1964	10	23	250	2,40	10	19	180	2,26
				100	4			100	1		
			1965	10	13	140	2,15	10	14	140	2,15
				100	2			100	1		
			1966	100	80	7600	3,88	100	35	3500	3,54
				1000	4			1000	3		
			1967	100	51	5000	3,70	100	37	3700	3,57
				1000	4			1000	4		
			1968	100	41	4300	3,63	100	35	3400	3,53
				1000	6			1000	2		
			1969	100	50	5000	3,70	100	35	3500	3,54
				1000	5			1000	3		
		3	1970	100	49	5100	3,71	100	30	3200	3,51
				1000	7			1000	5		
			1971	1000	39	38000	4,58	1000	36	36000	4,56
				10000	3			10000	0		
			1972	1000	38	35000	4,54	1000	27	27000	4,43
				10000	1			10000	3		
			1973	1000	28	26000	4,41	1000	19	18000	4,26
				10000	1			10000	1		
			1974	1000	8	8000	3,90	1000	7	7000	3,85
				10000	0		Ne	10000	1		Ne
			1975	1000	19	18000	4,26	1000	14	15000	4,18
				10000	1			10000	3		
Green peas Batch 2 Aerobic mesophilic flora: 1,0.10 ² CFU/g	Enterobacter intermedius 60	1	1976	10	18	180	2,26	10	11	110	2,04
				100	2			100	1		
			1977	10	14	140	2,15	10	10	100	2,00
				100	1			100	1		
			1978	10	13	120	2,08	10	10	100	2,00
				100	0			100	1		
		2	1979	10	14	130	2,11	10	10	100	2,00
				100	0			100	1		
			1980	10	15	150	2,18	10	14	160	2,20
				100	1			100	3		
			1981	100	44	4300	3,63	100	24	2400	3,38
				1000	3			1000	2		
			1982	100	50	4900	3,69	100	32	3100	3,49
				1000	4			1000	2		
			1983	100	58	5400	3,73	100	30	2900	3,46
				1000	1			1000	2		
		3	1984	100	44	4300	3,63	100	28	2600	3,41
				1000	3			1000	1		
			1985	100	61	6000	3,78	100	29	2900	3,46
				1000	5			1000	3		
			1986	1000	57	55000	4,74	1000	19	18000	4,26
				10000	3			10000	1		
			1987	1000	67	68000	4,83	1000	37	36000	4,56
				10000	8			10000	3		
			1988	1000	53	53000	4,72	1000	19	17000	4,23
				10000	5			10000	0		
			1989	1000	46	45000	4,65	1000	40	38000	4,58
				10000	3			10000	2		
			1990	1000	51	51000	4,71	1000	43	42000	4,62
				10000	5			10000	3		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	14h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Pasteurized liquid whole egg Batch 1 Aerobic mesophilic flora: 8,0. 10 ¹ CFU/g	<i>Citrobacter gillenii</i> Ad343	1	1888	10	40	390	2,59	10	16	170	2,23
				100	3			100	3		
			1889	10	20	200	2,30	10	37	360	2,56
				100	2			100	3		
			1890	10	30	300	2,48	10	31	300	2,48
				100	3			100	2		
		2	1891	10	26	280	2,45	10	41	380	2,58
				100	5			100	1		
			1892	10	34	340	2,53	10	24	260	2,41
				100	3			100	4		
			1893	100	74	7000	3,85	100	66	6600	3,82
				1000	3			1000	7		
		3	1894	100	80	7900	3,90	100	77	7500	3,88
				1000	7			1000	6		
			1895	100	66	6400	3,81	100	68	6700	3,83
				1000	4			1000	6		
			1896	100	47	4500	3,65	100	59	5900	3,77
				1000	3			1000	6		
		4	1897	100	78	8100	3,91	100	53	5300	3,72
				1000	11			1000	5		
			1898	1000	70	67000	4,83	1000	62	61000	4,79
				10000	4			10000	5		
			1899	1000	50	50000	4,70	1000	61	60000	4,78
				10000	5			10000	5		
		5	1900	1000	65	63000	4,80	1000	61	56000	4,75
				10000	4			10000	1		
			1901	1000	62	61000	4,79	1000	79	73000	4,86
				10000	5			10000	1		
			1902	1000	51	51000	4,71	1000	61	58000	4,76
				10000	5			10000	3		
Pasteurized liquid whole egg Batch 2 Aerobic mesophilic flora: 1,0. 10 ² CFU/g	<i>Citrobacter gillenii</i> Ad343	1	1903	10	23	220	2,34	10	28	270	2,43
				100	1			100	2		
			1904	10	29	280	2,45	10	24	240	2,38
				100	2			100	2		
			1905	10	40	400	2,60	10	18	160	2,20
				100	4			100	0		
		2	1906	10	37	380	2,58	10	30	280	2,45
				100	5			100	1		
			1907	10	33	340	2,53	10	25	260	2,41
				100	4			100	3		
			1908	100	80	8100	3,91	100	60	6600	3,82
				1000	9			1000	13		
		3	1909	100	110	11000	4,04	100	111	11000	4,04
				1000	6			1000	5		
			1910	100	86	8400	3,92	100	78	8000	3,90
				1000	6			1000	10		
			1911	100	106	11000	4,04	100	83	8400	3,92
				1000	14			1000	9		
		4	1912	100	77	7900	3,90	100	83	8100	3,91
				1000	10			1000	6		
			1913	1000	89	86000	4,93	1000	91	95000	4,98
				10000	6			10000	14		
			1914	1000	83	84000	4,92	1000	90	92000	4,96
				10000	9			10000	11		
		5	1915	1000	102	100000	5,00	1000	110	100000	5,00
				10000	8			10000	4		
			1916	1000	71	74000	4,87	1000	85	82000	4,91
				10000	10			10000	5		
			1917	1000	90	91000	4,96	1000	85	81000	4,91
				10000	10			10000	4		

Coliforms after 24 h incubation time

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	22h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Ground beef Batch 1 Aerobic mesophilic flora: CFU/g	<i>Enterobacter cloacae</i> 128	1	4137	10	26	280	2,45	10	22	220	2,34
				100	5			100	2		
			4138	10	27	260	2,41	10	24	260	2,41
				100	1			100	4		
			4139	10	29	280	2,45	10	27	270	2,43
				100	2			100	3		
		2	4140	10	25	260	2,41	10	33	350	2,54
				100	4			100	5		
			4141	10	37	360	2,56	10	23	260	2,41
				100	3			100	5		
			4142	100	83	8500	3,93	100	87	8500	3,93
				1000	10			1000	6		
			4143	100	98	9900	4,00	100	75	7300	3,86
				1000	11			1000	5		
			4144	100	94	9200	3,96	100	81	7800	3,89
				1000	7			1000	5		
			4145	100	96	9300	3,97	100	95	9000	3,95
				1000	6			1000	5		
			4146	100	111	10000	4,00	100	77	7400	3,87
				1000	2			1000	4		
		3	4147	1000	124	130000	5,11	1000	90	97000	4,99
				10000	14			10000	17		
			4148	1000	85	90000	4,95	1000	104	100000	5,00
				10000	14			10000	9		
			4149	1000	109	110000	5,04	1000	76	73000	4,86
				10000	8			10000	5		
			4150	1000	70	68000	4,83	1000	81	77000	4,89
				10000	5			10000	4		
			4151	1000	73	74000	4,87	1000	87	89000	4,95
				10000	8			10000	11		
Ground beef Aerobic mesophilic flora: CFU/g	<i>Enterobacter cloacae</i> 128	1	4152	10	39	370	2,57	10	100	960	2,98
				100	2			100	6		
			4153	10	33	310	2,49	10	18	200	2,30
				100	1			100	4		
			4154	10	32	310	2,49	10	26	260	2,41
				100	2			100	3		
		2	4155	10	82	770	2,89	10	27	260	2,41
				100	3			100	2		
			4156	10	104	1000	3,00	10	33	390	2,59
				100	9			100	10		
			4157	100	81	7800	3,89	100	90	9200	3,96
				1000	5			1000	11		
			4158	100	102	9600	3,98	100	90	8900	3,95
				1000	4			1000	8		
			4159	100	98	9500	3,98	100	70	7300	3,86
				1000	6			1000	10		
			4160	100	90	9200	3,96	100	84	8300	3,92
				1000	11			1000	7		
		3	4161	100	75	7900	3,90	100	83	8300	3,92
				1000	12			1000	8		
			4162	1000	72	72000	4,86	1000	80	82000	4,91
				10000	7			10000	10		
			4163	1000	87	85000	4,93	1000	77	77000	4,89
				10000	7			10000	8		
			4164	1000	77	78000	4,89	1000	67	65000	4,81
				10000	9			10000	4		
			4165	1000	87	85000	4,93	1000	76	76000	4,88
				10000	6			10000	8		
			4166	1000	66	69000	4,84	1000	56	57000	4,76
				10000	10			10000	7		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms				
				Dilution	CFU/plate	CFU/g)	log CFU/g	22h at 35°C				
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g	
Pasteurised milk Batch 1 Aerobic mesophilic flora: <10 CFU/g	C. sakazakii Ad2418	1	2238	10	18	180	2,26	10	6	60	1,78 Ne	
				100	2			100	1			
			2239	10	21	210	2,32	10	16	160	2,20	
				100	2			100	2			
			2240	10	20	190	2,28	10	17	160	2,20	
				100	1			100	1			
			2241	10	17	170	2,23	10	12	120	2,08	
				100	2			100	1			
			2242	10	12	110	2,04	10	13	150	2,18	
				100	0			100	3			
			2	2243	100	44	4600	3,66	100	37	3600	3,56
					1000	7			1000	3		
		2244		100	54	5500	3,74	100	51	5500	3,74	
				1000	6			1000	9			
		2245		100	48	4500	3,65	100	58	5500	3,74	
				1000	2			1000	2			
		2246		100	37	3900	3,59	100	48	4600	3,66	
				1000	6			1000	3			
		2247		100	45	4300	3,63	100	43	4100	3,61	
				1000	2			1000	2			
		3		2248	1000	52	55000	4,74	1000	40	40000	4,60
					10000	8			10000	1		
			2249	1000	60	59000	4,77	1000	50	47000	4,67	
				10000	5			10000	2			
2250			1000	58	62000	4,79	1000	66	63000	4,80		
			10000	10			10000	3				
2251			1000	61	59000	4,77	1000	52	51000	4,71		
			10000	4			10000	4				
2252			1000	54	54000	4,73	1000	50	51000	4,71		
			10000	5			10000	6				
1			2253	10	13	140	2,15	10	10	91	1,96	
				100	2			100	0			
		2254	10	11	120	2,08	10	21	190	2,28		
			100	2			100	0				
		2255	10	9	90	1,95 Ne	10	7	70	1,85 Ne		
			100	1			100	4				
		2256	10	12	120	2,08	10	10	100	2,00		
			100	1			100	1				
		2257	10	10	100	2,00	10	6	60	1,78 Ne		
			100	1			100	2				
		2	2258	100	38	3900	3,59	100	36	3500	3,54	
				1000	5			1000	3			
2259			100	59	5900	3,77	100	28	3100	3,49		
			1000	6			1000	6				
2260			100	54	5300	3,72	100	31	3100	3,49		
			1000	4			1000	3				
2261			100	65	6600	3,82	100	27	2800	3,45		
			1000	8			1000	4				
2262	100		50	5100	3,71	100	53	5100	3,71			
	1000		6			1000	3					
3	2263		1000	54	53000	4,72	1000	45	44000	4,64		
			10000	4			10000	3				
	2264	1000	60	59000	4,77	1000	50	54000	4,73			
		10000	5			10000	9					
	2265	1000	45	43000	4,63	1000	42	42000	4,62			
		10000	2			10000	0					
	2266	1000	49	50000	4,70	1000	33	36000	4,56			
		10000	6			10000	7					
	2267	1000	56	54000	4,73	1000	46	45000	4,65			
		10000	3			10000	4					

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms				
				Dilution	CFU/plate	CFU/g	log CFU/g	22h at 35°C				
								Dilution	CFU/Petrifilm test	CFU/g	log CFU/g	
Raw fish filet Batch 1 Aerobic mesophilic flora: 2,0.10 ² CFU/g	E. coli Ad228	1	2949	10	36	650	2,81	10	14	140	2,15	
				100	3			100	1			
			2950	10	21	230	2,36	10	22	230	2,36	
				100	4			100	3			
			2951	10	27	320	2,51	10	19	190	2,28	
				100	8			100	2			
		2952	10	24	250	2,40	10	30	270	2,43		
			100	3			100	0				
		2953	10	15	180	2,26	10	18	160	2,20		
			100	5			100	0				
		2	2954	100	34	3700	3,57	100	56	5400	3,73	
				1000	7			1000	3			
			2955	100	57	5500	3,74	100	44	4200	3,62	
				1000	3			1000	2			
			2956	100	52	4900	3,69	100	39	3900	3,59	
				1000	2			1000	4			
		2957	100	70	6600	3,82	100	50	5200	3,72		
			1000	3			1000	7				
		3	2958	100	59	6300	3,80	100	42	4000	3,60	
				1000	11			1000	2			
			2959	1000	58	65000	4,81	1000	43	44000	4,64	
				10000	13			10000	5			
			2960	1000	41	40000	4,60	1000	32	34000	4,53	
				10000	3			10000	5			
2961		1000	41	39000	4,59	1000	43	42000	4,62			
		10000	2			10000	3					
2962		1000	35	34000	4,53	1000	44	43000	4,63			
		10000	2			10000	3					
2963		1000	21	20000	4,30	1000	33	34000	4,53			
		10000	1			10000	4					
Raw fish filet Aerobic mesophilic flora: 1,0.10 ⁶ CFU/g		E. coli Ad228	1	2964	10	51	470	2,67	10	16	170	2,23
					100	1			100	3		
				2965	10	20	220	2,34	10	17	160	2,20
					100	4			100	0		
				2966	10	25	250	2,40	10	20	210	2,32
					100	2			100	3		
			2967	10	5	50	1,70 Ne	10	19	180	2,26	
				100	1			100	1			
			2968	10	7	70	1,85 Ne	10	19	170	2,23	
				100	2			100	0			
	2		2969	100	85	8300	3,92	100	41	4400	3,64	
				1000	6			1000	7			
			2970	100	45	4500	3,65	100	48	4500	3,65	
				1000	4			1000	2			
			2971	100	72	7200	3,86	100	42	4200	3,62	
				1000	7			1000	4			
	2972		100	45	4300	3,63	100	45	4500	3,65		
			1000	2			1000	5				
	3		2973	100	65	6500	3,81	100	56	5500	3,74	
				1000	6			1000	5			
			2974	1000	120	120000	5,08	1000	79	78000	4,89	
				10000	9			10000	7			
			2975	1000	76	74000	4,87	1000	64	67000	4,83	
				10000	5			10000	10			
2976	1000		76	75000	4,88	1000	66	66000	4,82			
	10000		6			10000	7					
2977	1000		66	67000	4,83	1000	66	61000	4,79			
	10000		8			10000	1					
2978	1000		104	100000	5,00	1000	64	62000	4,79			
	10000		8			10000	4					

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	22h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Green peas Batch 1 Aerobic mesophilic flora: 1,4.10 ² CFU/g	Enterobacter intermedius 60	1	1961	10	18	180	2,26	10	9	90	1,95
				100	2			100	2		Ne
			1962	10	22	220	2,34	10	20	180	2,26
				100	2			100	0		
			1963	10	22	200	2,30	10	21	190	2,28
				100	0			100	0		
		2	1964	10	23	250	2,40	10	22	210	2,32
				100	4			100	1		
			1965	10	13	140	2,15	10	15	150	2,18
				100	2			100	1		
			1966	100	80	7600	3,88	100	36	3500	3,54
				1000	4			1000	3		
		2	1967	100	51	5000	3,70	100	40	4000	3,60
				1000	4			1000	4		
			1968	100	41	4300	3,63	100	37	3500	3,54
				1000	6			1000	2		
		3	1969	100	50	5000	3,70	100	40	3900	3,59
				1000	5			1000	3		
			1970	100	49	5100	3,71	100	41	4200	3,62
				1000	7			1000	5		
		3	1971	1000	39	38000	4,58	1000	39	39000	4,59
				10000	3			10000	0		
			1972	1000	38	35000	4,54	1000	29	30000	4,48
				10000	1			10000	4		
			1973	1000	28	26000	4,41	1000	19	18000	4,26
				10000	1			10000	1		
Green peas Batch 2 Aerobic mesophilic flora: 1,0.10 ² CFU/g	Enterobacter intermedius 60	1	1974	1000	8	8000	3,90	1000	7	7000	3,85
				10000	0		Ne	10000	1		Ne
			1975	1000	19	18000	4,26	1000	14	16000	4,20
				10000	1			10000	4		
		2	1976	10	18	180	2,26	10	12	120	2,08
				100	2			100	1		
			1977	10	14	140	2,15	10	13	130	2,11
				100	1			100	1		
		3	1978	10	13	120	2,08	10	10	100	2,00
				100	0			100	1		
		2	1979	10	14	130	2,11	10	11	110	2,04
				100	0			100	1		
			1980	10	15	150	2,18	10	14	160	2,20
				100	1			100	3		
		2	1981	100	44	4300	3,63	100	28	2700	3,43
				1000	3			1000	2		
			1982	100	50	4900	3,69	100	39	4000	3,60
				1000	4			1000	5		
		3	1983	100	58	5400	3,73	100	34	3300	3,52
				1000	1			1000	2		
			1984	100	44	4300	3,63	100	35	3300	3,52
				1000	3			1000	1		
		3	1985	100	61	6000	3,78	100	31	3100	3,49
				1000	5			1000	3		
			1986	1000	57	55000	4,74	1000	21	21000	4,32
				10000	3			10000	2		
		3	1987	1000	67	68000	4,83	1000	40	39000	4,59
				10000	8			10000	3		
			1988	1000	53	53000	4,72	1000	20	18000	4,26
				10000	5			10000	0		
		3	1989	1000	46	45000	4,65	1000	41	39000	4,59
				10000	3			10000	2		
		3	1990	1000	51	51000	4,71	1000	47	45000	4,65
				10000	5			10000	3		

Matrix	Strain	Level	N°sample	ISO 4832 (VRBL)				NEOGEN Petrifilm RCC Total coliforms			
				Dilution	CFU/plate	CFU/g	log CFU/g	22h at 35°C			
								Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Pasteurized liquid whole egg Batch 1 Aerobic mesophilic flora: 8,0.10 ¹ CFU/g	Citrobacter gillenii Ad343	1	1888	10	40	390	2,59	10	17	180	2,26
				100	3			100	3		
			1889	10	20	200	2,30	10	38	370	2,57
				100	2			100	3		
			1890	10	30	300	2,48	10	34	330	2,52
				100	3			100	2		
		2	1891	10	26	280	2,45	10	42	390	2,59
				100	5			100	1		
			1892	10	34	340	2,53	10	26	270	2,43
				100	3			100	4		
			1893	100	74	7000	3,85	100	66	6600	3,82
				1000	3			1000	7		
		2	1894	100	80	7900	3,90	100	77	7500	3,88
				1000	7			1000	6		
			1895	100	66	6400	3,81	100	70	6900	3,84
				1000	4			1000	6		
			1896	100	47	4500	3,65	100	66	6500	3,81
				1000	3			1000	6		
		3	1897	100	78	8100	3,91	100	58	5700	3,76
				1000	11			1000	5		
			1898	1000	70	67000	4,83	1000	69	67000	4,83
				10000	4			10000	5		
			1899	1000	50	50000	4,70	1000	65	64000	4,81
				10000	5			10000	5		
Pasteurized liquid whole egg Batch 2 Aerobic mesophilic flora: 1,0.10 ² CFU/g	Citrobacter gillenii Ad343	1	1900	1000	65	63000	4,80	1000	66	61000	4,79
				10000	4			10000	1		
			1901	1000	62	61000	4,79	1000	79	74000	4,87
				10000	5			10000	2		
			1902	1000	51	51000	4,71	1000	63	60000	4,78
				10000	5			10000	3		
		2	1903	10	23	220	2,34	10	30	290	2,46
				100	1			100	2		
			1904	10	29	280	2,45	10	27	260	2,41
				100	2			100	2		
			1905	10	40	400	2,60	10	18	160	2,20
				100	4			100	0		
		2	1906	10	37	380	2,58	10	37	350	2,54
				100	5			100	1		
			1907	10	33	340	2,53	10	25	260	2,41
				100	4			100	3		
			1908	100	80	8100	3,91	100	60	6600	3,82
				1000	9			1000	13		
		2	1909	100	110	11000	4,04	100	112	11000	4,04
				1000	6			1000	5		
			1910	100	86	8400	3,92	100	78	8100	3,91
				1000	6			1000	11		
			1911	100	106	11000	4,04	100	84	8500	3,93
				1000	14			1000	10		
		3	1912	100	77	7900	3,90	100	90	8800	3,94
				1000	10			1000	7		
			1913	1000	89	86000	4,93	1000	94	98000	4,99
				10000	6			10000	14		
			1914	1000	83	84000	4,92	1000	94	95000	4,98
				10000	9			10000	11		
		3	1915	1000	102	100000	5,00	1000	110	100000	5,00
				10000	8			10000	5		
			1916	1000	71	74000	4,87	1000	85	82000	4,91
				10000	10			10000	5		
		3	1917	1000	90	91000	4,96	1000	85	81000	4,91
				10000	10			10000	4		

Gas producing coliforms after 24 h incubation time

Matrix	Strain	Level	N°sample	ISO 4831 (MPN)		NEOGEN Petrifilm RCC Gaz producing coliforms			
						22h at 35°C			
				MPN	log(MPN)	Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Ground beef Batch 1 Aerobic mesophilic flora: CFU/g	<i>Enterobacter cloacae</i> 128	1	4137	240	2,38	10	22	220	2,34
			4138	240	2,38	100	2	260	2,41
						10	24		
			4139	460	2,66	100	4	270	2,43
						10	27		
		2	4140	240	2,38	10	33	350	2,54
			4141	240	2,38	100	5	260	2,41
						10	23		
			4142	2400	3,38	100	87	8500	3,93
						1000	6		
		3	4143	11000	4,04	100	75	7300	3,86
			4144	11000	4,04	1000	5	7800	3,89
						100	81		
			4145	11000	4,04	1000	5	9000	3,95
						100	95		
Ground beef Aerobic mesophilic flora: CFU/g	<i>Enterobacter cloacae</i> 128	1	4146	430	2,63	100	77	7400	3,87
			4147	46000	4,66	1000	4	97000	4,99
						10000	17		
			4148	46000	4,66	1000	104	100000	5,00
						10000	9		
		2	4149	110000	5,04	1000	76	73000	4,86
			4150	46000	4,66	10000	5	77000	4,89
						1000	81		
			4151	110000	5,04	10000	4	89000	4,95
						1000	87		
		3	4152	460	2,66	10000	11	960	2,98
			4153	460	2,66	100	100		
						100	6	200	2,30
			4154	460	2,66	10	18		
						100	4	260	2,41
Ground beef Aerobic mesophilic flora: CFU/g	<i>Enterobacter cloacae</i> 128	1	4155	220	2,34	10	26	260	2,41
			4156	220	2,34	100	3	260	2,41
						10	27		
			4157	220	2,34	100	2	390	2,59
						10	33		
		2	4158	220	2,34	100	10	9200	3,96
			4159	11000	4,04	100	90		
						1000	11	8900	3,95
			4160	4600	3,66	100	90		
						1000	8	7300	3,86
		3	4161	4600	3,66	100	70	8300	3,92
			4162	11000	4,04	1000	10		
						1000	84	8300	3,92
			4163	11000	4,04	10000	7		
						1000	83	8300	3,92
		3	4164	4600	3,66	1000	8	82000	4,91
			4165	46000	4,66	10000	10		
						1000	77	77000	4,89
			4166	24000	4,38	10000	8		
						1000	67	65000	4,81
			4167	110000	5,04	10000	4		
						1000	76	76000	4,88
			4168	24000	4,38	10000	8		
						1000	56	57000	4,76
						10000	7		

Matrix	Strain	Level	N°sample	ISO 4831 (MPN)		NEOGEN Petrifilm RCC Gaz producing coliforms				
				22h at 35°C						
				MPN	log(MPN)	Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g	
Pasteurised milk Batch 1 Aerobic mesophilic flora: <10 CFU/g	C. sakazakii Ad2418	1	2238	150	2,18	10	6	60	1,78	
						100	1		Ne	
			2239	93	1,97	10	16	160	2,20	
						100	2			
			2240	220	2,34	10	17	160	2,20	
						100	1			
			2241	150	2,18	10	12	120	2,08	
					100	1				
		2242	93	1,97	10	13	150	2,18		
					100	3				
		2	2243	4300	3,63	100	37	3600	3,56	
						1000	3			
			2244	9300	3,97	100	51	5500	3,74	
						1000	9			
			2245	9300	3,97	100	58	5500	3,74	
						1000	2			
			2246	2300	3,36	100	48	4600	3,66	
					1000	3				
		2247	1500	3,18	100	43	4100	3,61		
					1000	2				
		3	2248	93000	4,97	1000	40	40000	4,60	
						10000	1			
			2249	43000	4,63	1000	50	47000	4,67	
						10000	2			
			2250	23000	4,36	1000	66	63000	4,80	
						10000	3			
			2251	23000	4,36	1000	52	51000	4,71	
				10000	4					
Pasteurised milk Aerobic mesophilic flora: <10 CFU/g		C. sakazakii Ad2418	1	2252	43000	4,63	1000	50	51000	4,71
							10000	6		
	2253			93	1,97	10	10	91	1,96	
						100	0			
	2254			93	1,97	10	21	190	2,28	
						100	0			
	2255			220	2,34	10	7	70	1,85	
					100	4				
	2256		43	1,63	10	10	100	2,00		
					100	1				
	2257		460	2,66	10	6	60	1,78		
					100	2				
	2		2258	9300	3,97	100	36	3500	3,54	
						1000	3			
			2259	3900	3,59	100	28	3100	3,49	
						1000	6			
			2260	1500	3,18	100	31	3100	3,49	
						1000	3			
			2261	9300	3,97	100	27	2800	3,45	
					1000	4				
	2262		2300	3,36	100	53	5100	3,71		
					1000	3				
	3		2263	43000	4,63	1000	45	44000	4,64	
						10000	3			
			2264	43000	4,63	1000	50	54000	4,73	
						10000	9			
			2265	23000	4,36	1000	42	42000	4,62	
					10000	0				
		2266	23000	4,36	1000	33	36000	4,56		
				10000	7					
	2267	43000	4,63	1000	46	45000	4,65			
				10000	4					

Matrix	Strain	Level	N°sample	ISO 4831 (MPN)		NEOGEN Petrifilm RCC Gaz producing coliforms			
				MPN	log(MPN)	22h at 35°C			
						Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g
Raw fish filet Batch 1 Aerobic mesophilic flora: 2,0.10 ² CFU/g	E. coli Ad228	1	2949	1100	3,04	10	14	140	2,15
						100	1		
			2950	1100	3,04	10	22	230	2,36
						100	3		
			2951	460	2,66	10	19	190	2,28
						100	2		
		2	2952	150	2,18	10	30	270	2,43
						100	0		
			2953	93	1,97	10	18	160	2,20
						100	0		
			2954	4600	3,66	100	56	5400	3,73
						1000	3		
		3	2955	11000	4,04	100	44	4200	3,62
						1000	2		
			2956	4600	3,66	100	39	3900	3,59
						1000	4		
			2957	2200	3,34	100	50	5200	3,72
						1000	7		
		4	2958	4600	3,66	100	42	4000	3,60
						1000	2		
2959			24000	4,38	1000	43	44000	4,64	
					10000	5			
2960			46000	4,66	1000	32	34000	4,53	
					10000	5			
Raw fish filet Aerobic mesophilic flora: 1,0.10 ⁶ CFU/g		1	2961	46000	4,66	1000	43	41000	4,61
						10000	2		
			2962	46000	4,66	1000	44	43000	4,63
						10000	3		
			2963	46000	4,66	1000	33	34000	4,53
						10000	4		
	2	2964	240	2,38	10	16	170	2,23	
					100	3			
		2965	1100	3,04	10	17	160	2,20	
					100	0			
		2966	240	2,38	10	20	210	2,32	
					100	3			
	3	2967	240	2,38	10	19	180	2,26	
					100	1			
		2968	460	2,66	10	19	170	2,23	
					100	0			
		2969	2400	3,38	100	41	4400	3,64	
					1000	7			
	4	2970	4600	3,66	100	48	4500	3,65	
					1000	2			
2971		4600	3,66	100	42	4200	3,62		
				1000	4				
2972		2400	3,38	100	45	4500	3,65		
				1000	5				
5	2973	210	2,32	100	56	5500	3,74		
				1000	5				
	2974	110000	5,04	1000	79	78000	4,89		
				10000	7				
	2975	110000	5,04	1000	64	67000	4,83		
				10000	10				
6	2976	110000	5,04	1000	66	66000	4,82		
				10000	7				
	2977	110000	5,04	1000	66	61000	4,79		
				10000	1				
	2978	24000	4,38	1000	64	62000	4,79		
				10000	4				

Matrix	Strain	Level	N°sample	ISO 4831 (MPN)		NEOGEN Petrifilm RCC Gaz producing coliforms				
						22h at 35°C				
				MPN	log(MPN)	Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g	
Green peas Batch 1 Aerobic mesophilic flora: 1,4.10 ² CFU/g	Enterobacter intermedium 60	1	1961	21	1,32	10	9	90	1,95	
						100	2			
			1962	15	1,18	10	20	180	2,26	
						100	0			
			1963	43	1,63	10	21	190	2,28	
						100	0			
		1964	75	1,88	10	22	210	2,32		
					100	1				
		1965	9,2	0,96	10	15	150	2,18		
					100	1				
		2	1966	360	2,56	100	36	3500	3,54	
						1000	3			
			1967	360	2,56	100	40	4000	3,60	
						1000	4			
			1968	360	2,56	100	37	3500	3,54	
						1000	2			
		1969	360	2,56	100	40	3900	3,59		
					1000	3				
		1970	360	2,56	100	41	4200	3,62		
					1000	5				
		3	1971	3600	3,56	1000	39	39000	4,59	
						10000	0			
			1972	3600	3,56	1000	29	30000	4,48	
						10000	4			
1973			3600	3,56	1000	19	18000	4,26		
					10000	1				
1974		9200	3,96	1000	7	7000	3,85 Ne			
				10000	1					
1975		3600	3,56	1000	14	16000	4,20			
				10000	4					
Green peas Batch 2 Aerobic mesophilic flora: 1,0.10 ² CFU/g		Enterobacter intermedium 60	1	1976	43	1,63	10	12	120	2,08
							100	1		
				1977	43	1,63	10	13	130	2,11
							100	1		
				1978	43	1,63	10	10	100	2,00
							100	1		
			1979	3,6	0,56	10	11	110	2,04	
						100	1			
	1980		3,6	0,56	10	14	160	2,20		
					100	3				
	2		1981	920	2,96	100	28	2700	3,43	
						1000	2			
			1982	1500	3,18	100	39	4000	3,60	
						1000	5			
			1983	2300	3,36	100	34	3300	3,52	
						1000	2			
	1984		360	2,56	100	35	3300	3,52		
					1000	1				
	1985		360	2,56	100	31	3100	3,49		
					1000	3				
	3		1986	3600	3,56	1000	21	21000	4,32	
						10000	2			
			1987	3600	3,56	1000	40	39000	4,59	
						10000	3			
1988		15000	4,18	1000	20	18000	4,26			
				10000	0					
1989		3600	3,56	1000	41	39000	4,59			
				10000	2					
1990	3600	3,56	1000	47	45000	4,65				
			10000	3						

Matrix	Strain	Level	N°sample	ISO 4831 (MPN)		NEOGEN Petrifilm RCC Gaz producing coliforms				
				MPN	log(MPN)	22h at 35°C				
						Dilution	CFU/ Petrifilm test	CFU/g	log CFU/g	
Pasteurized liquid whole egg Batch 1 Aerobic mesophilic flora: 8,0.10 ¹ CFU/g	Citrobacter gillenii Ad343	1	1888	460	2,66	10	17	180	2,26	
						100	3			
			1889	240	2,38	10	38	370	2,57	
						100	3			
			1890	240	2,38	10	34	330	2,52	
						100	2			
		1891	240	2,38	10	42	390	2,59		
					100	1				
			1892	240	2,38	10	26	270	2,43	
						100	4			
				1893	4300	3,63	100	66	6600	3,82
							1000	7		
		1894			9300	3,97	100	77	7500	3,88
							1000	6		
			1895		4300	3,63	100	70	6900	3,84
							1000	6		
				1896	2400	3,38	100	66	6500	3,81
							1000	6		
		1897			9300	3,97	100	58	5700	3,76
							1000	5		
			1898		75000	4,88	1000	69	67000	4,83
							10000	5		
				1899	43000	4,63	1000	65	64000	4,81
							10000	5		
1900		43000			4,63	1000	66	61000	4,79	
						10000	1			
		1901	93000		4,97	1000	79	74000	4,87	
						10000	2			
			1902	24000	4,38	1000	63	60000	4,78	
						10000	3			
1903	240			2,38	10	30	290	2,46		
					100	2				
	1904	150		2,18	10	27	260	2,41		
					100	2				
		1905	460	2,66	10	18	160	2,20		
					100	0				
1906			460	2,66	10	37	350	2,54		
					100	1				
	1907		1100	3,04	10	25	260	2,41		
					100	3				
		1908	9300	3,97	100	60	6600	3,82		
					1000	13				
1909			22000	4,34	100	112	11000	4,04		
					1000	5				
	1910		4300	3,63	100	78	8100	3,91		
					1000	11				
		1911	22000	4,34	100	84	8500	3,93		
					1000	10				
1912			9300	3,97	100	90	8800	3,94		
					1000	7				
	1913		93000	4,97	1000	94	98000	4,99		
					10000	14				
		1914	93000	4,97	1000	94	95000	4,98		
					10000	11				
1915			75000	4,88	1000	110	100000	5,00		
					10000	5				
	1916		150000	5,18	1000	85	82000	4,91		
					10000	5				
		1917	93000	4,97	1000	85	81000	4,91		
					10000	4				

Appendix F - Accuracy profile study: summarized results

Coliforms after 14 h incubation time

(Food) Category 1			Category 1- Meat products									
(Food) Type 1			Ground beef meat (Enterobacter cloacae 128)									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
4137-4141	Ground beef meat	low	280	260	280	260	360	220	260	260	320	230
4152-4156	Ground beef meat	low	370	310	310	770	1000	960	190	260	230	380
4142-4146	Ground beef meat	intermediate	8500	9900	9200	9300	10000	7900	7000	6900	8600	6500
4157-4161	Ground beef meat	intermediate	7800	9600	9500	9200	7900	8600	7700	6700	8000	7800
4147-4151	Ground beef meat	high	130000	90000	110000	68000	74000	94000	96000	72000	75000	85000
4162-4166	Ground beef meat	high	72000	85000	78000	85000	69000	70000	71000	59000	69000	55000
(Food) Category 3			Category 2- Dairy products									
(Food) Type 3			Pasteurised milk									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2238-2242	Pasteurised milk	low	180	210	190	170	110	60	450	130	120	140
2253-2257	Pasteurised milk	low	140	120	90	120	100	90	180	70	90	60
2243-2247	Pasteurised milk	intermediate	4600	5500	4500	3900	4300	3400	5000	5400	4400	4000
2258-2262	Pasteurised milk	intermediate	3900	5900	5300	6600	5100	3200	2800	2900	2600	4900
2248-2252	Pasteurised milk	high	55000	59000	62000	59000	54000	36000	43000	59000	48000	50000
2263-2267	Pasteurised milk	high	53000	59000	43000	50000	54000	41000	53000	38000	35000	45000
(Food) Category 5			Category 4 -Vegetables									
(Food) Type 5			Green peas									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1961-1965	Green peas	low	180	220	200	250	140	70	170	180	180	140
1976-1980	Green peas	low	180	140	120	130	150	110	100	100	100	160
1966-1970	Green peas	intermediate	7600	5000	4300	5000	5100	3500	3700	3400	3500	3200
1981-1985	Green peas	intermediate	4300	4900	5400	4300	6000	2400	3100	2900	2600	2900
1971-1975	Green peas	high	38000	35000	26000	8000	18000	36000	27000	18000	7000	15000
1986-1990	Green peas	high	55000	68000	53000	45000	51000	18000	36000	17000	38000	42000

(Food) Category 2			Category 1- Meat products									
(Food) Type 2			Ground beef meat (Enterobacter cloacae 58)									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
3142-3146	Ground beef meat	low	310	500	260	250	330	260	240	200	260	260
3157-3161	Ground beef meat	low	3000	240	310	260	160	240	130	250	120	400
3147-3151	Ground beef meat	intermediate	6000	12000	6800	8000	8000	6700	6500	6800	8000	6800
3162-3166	Ground beef meat	intermediate	6800	6500	5500	6600	7600	4500	6100	6500	6700	5100
3152-3156	Ground beef meat	high	91000	80000	72000	55000	72000	53000	52000	69000	55000	55000
3167-3171	Ground beef meat	high	65000	77000	81000	60000	62000	41000	69000	54000	58000	55000
(Food) Category 4			Category 3 - Seafood products									
(Food) Type 4			Raw fish filet									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2949-2953	Raw fish filet	low	650	230	320	250	180	120	190	190	260	160
2964-2968	Raw fish filet	low	470	220	250	50	70	160	160	190	180	170
2954-2958	Raw fish filet	intermediate	3700	5500	4900	6600	6300	5400	4200	3800	5200	4000
2969-2973	Raw fish filet	intermediate	8300	4500	7200	4300	6500	4400	4500	3800	4500	5400
2959-2963	Raw fish filet	high	65000	40000	39000	34000	20000	44000	31000	38000	43000	32000
2974-2978	Raw fish filet	high	12000	74000	75000	67000	100000	76000	66000	65000	59000	58000
(Food) Category 6			Category 5 - Egg products and composites									
(Food) Type 6			Liquid egg									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1888-1892	Pasteurized liquid whole egg	low	390	200	300	280	340	170	360	300	380	260
1903-1907	Pasteurized liquid whole egg	low	220	280	400	380	340	270	240	160	280	260
1893-1897	Pasteurized liquid whole egg	intermediate	7000	7900	6400	4500	8100	6600	7500	6700	5900	5300
1908-1912	Pasteurized liquid whole egg	intermediate	8100	11000	8400	11000	7900	6600	11000	8000	8400	8100
1898-1902	Pasteurized liquid whole egg	high	67000	50000	63000	61000	51000	61000	60000	56000	73000	58000
1913-1917	Pasteurized liquid whole egg	high	86000	84000	100000	74000	91000	95000	92000	10000	82000	81000

Coliforms after 24 h incubation time

(Food) Category 1			Category 1- Meat products									
(Food) Type 1			Ground beef meat (Enterobacter cloacae 128)									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
4137-4141	Ground beef meat	low	280	260	280	260	360	220	260	270	350	260
4152-4156	Ground beef meat	low	370	310	310	770	1000	960	200	260	260	390
4142-4146	Ground beef meat	intermediate	8500	9900	9200	9300	10000	8500	7300	7800	9000	7400
4157-4161	Ground beef meat	intermediate	7800	9600	9500	9200	7900	9200	8900	7300	8300	8300
4147-4151	Ground beef meat	high	130000	90000	110000	68000	74000	97000	100000	73000	77000	89000
4162-4166	Ground beef meat	high	72000	85000	78000	85000	69000	82000	77000	65000	76000	57000
(Food) Category 3			Category 2- Dairy products									
(Food) Type 3			Pasteurised milk									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2238-2242	Pasteurised milk	low	180	210	190	170	110	60	160	160	120	150
2253-2257	Pasteurised milk	low	140	120	90	120	100	91	190	70	100	60
2243-2247	Pasteurised milk	intermediate	4600	5500	4500	3900	4300	3600	5500	5500	4600	4100
2258-2262	Pasteurised milk	intermediate	3900	5900	5300	6600	5100	3500	3100	3100	2800	5100
2248-2252	Pasteurised milk	high	55000	59000	62000	59000	54000	40000	47000	63000	51000	51000
2263-2267	Pasteurised milk	high	53000	59000	43000	50000	54000	44000	54000	42000	36000	45000
(Food) Category 5			Category 4 -Vegetables									
(Food) Type 5			Green peas									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1961-1965	Green peas	low	180	220	200	250	140	90	180	190	210	150
1976-1980	Green peas	low	180	140	120	130	150	120	130	100	110	160
1966-1970	Green peas	intermediate	7600	5000	4300	5000	5100	3500	4000	3500	3900	4200
1981-1985	Green peas	intermediate	4300	4900	5400	4300	6000	2700	4000	3300	3300	3100
1971-1975	Green peas	high	38000	35000	26000	8000	18000	39000	30000	18000	7000	16000
1986-1990	Green peas	high	55000	68000	53000	45000	51000	21000	39000	18000	39000	45000

(Food) Category 2			Category 1- Meat products									
(Food) Type 2			Ground beef meat (Enterobacter cloacae 58)									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
3142-3146	Ground beef meat	low	310	500	260	250	330	350	260	220	270	290
3157-3161	Ground beef meat	low	3000	240	310	260	160	240	150	250	150	440
3147-3151	Ground beef meat	intermediate	6000	12000	6800	8000	8000	7500	6900	7300	8300	7600
3162-3166	Ground beef meat	intermediate	6800	6500	5500	6600	7600	4700	6500	6700	6800	5500
3152-3156	Ground beef meat	high	91000	80000	72000	55000	72000	61000	59000	75000	60000	59000
3167-3171	Ground beef meat	high	65000	77000	81000	60000	62000	45000	74000	59000	62000	61000
(Food) Category 4			Category 3 - Seafood products									
(Food) Type 4			Raw fish filet									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2949-2953	Raw fish filet	low	650	230	320	250	180	140	230	190	270	160
2964-2968	Raw fish filet	low	470	220	250	50	70	170	160	210	180	170
2954-2958	Raw fish filet	intermediate	3700	5500	4900	6600	6300	5400	4200	3900	5200	4000
2969-2973	Raw fish filet	intermediate	8300	4500	7200	4300	6500	4400	4500	4200	4500	5500
2959-2963	Raw fish filet	high	65000	40000	39000	34000	20000	44000	34000	42000	43000	34000
2974-2978	Raw fish filet	high	12000	74000	75000	67000	100000	78000	67000	66000	61000	62000
(Food) Category 6			Category 5 - Egg products and composites									
(Food) Type 6			Liquid egg									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1888-1892	Pasteurized liquid whole egg	low	390	200	300	280	340	180	370	330	390	270
1903-1907	Pasteurized liquid whole egg	low	220	280	400	380	340	290	260	160	350	260
1893-1897	Pasteurized liquid whole egg	intermediate	7000	7900	6400	4500	8100	6600	7500	6900	6500	5700
1908-1912	Pasteurized liquid whole egg	intermediate	8100	11000	8400	11000	7900	6600	11000	8100	8500	8800
1898-1902	Pasteurized liquid whole egg	high	67000	50000	63000	61000	51000	67000	64000	61000	74000	60000
1913-1917	Pasteurized liquid whole egg	high	86000	84000	100000	74000	91000	98000	95000	100000	82000	81000

Gas producing coliforms after 24 h incubation time

(Food) Category 1			Category 1- Meat products									
(Food) Type 1			Ground beef meat (Enterobacter cloacae 128)									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
4137-4141	Ground beef meat	low	240	240	460	240	240	220	260	270	350	260
4152-4156	Ground beef meat	low	460	460	460	220	220	960	200	260	260	390
4142-4146	Ground beef meat	intermediate	2400	11000	11000	11000	430	8500	7300	7800	9000	7400
4157-4161	Ground beef meat	intermediate	11000	4600	4600	11000	11000	9200	8900	7300	8300	8300
4147-4151	Ground beef meat	high	46000	46000	110000	46000	110000	97000	100000	73000	77000	89000
4162-4166	Ground beef meat	high	110000	46000	46000	110000	24000	82000	77000	65000	76000	57000
(Food) Category 3			Category 3 - Seafood products									
(Food) Type 3			Raw fish filet									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2949-2953	Raw fish filet	low	1100	1100	460	150	93	140	230	190	270	160
2964-2968	Raw fish filet	low	240	1100	240	240	460	170	160	210	180	170
2954-2958	Raw fish filet	intermediate	4600	11000	4600	2200	4600	5400	4200	3900	5200	4000
2969-2973	Raw fish filet	intermediate	2400	4600	4600	2400	210	4400	4500	4200	4500	5500
2959-2963	Raw fish filet	high	24000	46000	46000	46000	46000	44000	34000	42000	43000	34000
2974-2978	Raw fish filet	high	110000	110000	110000	110000	24000	78000	67000	66000	61000	62000
(Food) Category 5			Category 5 - Egg products and composites									
(Food) Type 5			Liquid egg									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1888-1892	Pasteurized liquid whole egg	low	460	240	240	240	240	180	370	330	390	270
1903-1907	Pasteurized liquid whole egg	low	240	150	460	460	1100	290	260	160	350	260
1893-1897	Pasteurized liquid whole egg	intermediate	4300	9300	4300	2400	9300	6600	7500	6900	6500	5700
1908-1912	Pasteurized liquid whole egg	intermediate	9300	22000	4300	22000	9300	6600	11000	8100	8500	8800
1898-1902	Pasteurized liquid whole egg	high	75000	43000	43000	93000	24000	67000	64000	61000	74000	60000
1913-1917	Pasteurized liquid whole egg	high	93000	93000	75000	150000	93000	98000	95000	100000	82000	81000

(Food) Category 2			Category 2- Dairy products									
(Food) Type 2			Pasteurised milk									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
2238-2242	Pasteurised milk	low	150	93	220	150	93	60	160	160	120	150
2253-2257	Pasteurised milk	low	93	93	220	43	460	91	190	70	100	60
2243-2247	Pasteurised milk	intermediate	4300	9300	9300	2300	1500	3600	5500	5500	4600	4100
2258-2262	Pasteurised milk	intermediate	9300	3900	1500	9300	2300	3500	3100	3100	2800	5100
2248-2252	Pasteurised milk	high	93000	43000	23000	23000	43000	40000	47000	63000	51000	51000
2263-2267	Pasteurised milk	high	43000	43000	23000	23000	43000	44000	54000	42000	36000	45000
(Food) Category 4			Category 4 -Vegetables									
(Food) Type 4			Green peas									
			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
1961-1965	Green peas	low	21	15	43	75	9	90	180	190	210	150
1976-1980	Green peas	low	43	43	43	4	4	120	130	100	110	160
1966-1970	Green peas	intermediate	360	360	360	360	360	3500	4000	3500	3900	4200
1981-1985	Green peas	intermediate	920	1500	2300	360	360	2700	4000	3300	3300	3100
1971-1975	Green peas	high	3600	3600	3600	9200	3600	39000	30000	18000	7000	16000
1986-1990	Green peas	high	3600	3600	15000	3600	3600	21000	39000	18000	39000	45000

Appendix G – Inclusivity / Exclusivity: raw data

INCLUSIVITY (1997)					
No	Strain	Petrifilm 14 h	Petrifilm 24 h (35°C)		VRBL
			Growth	Gas production	
1	<i>Citrobacter diversus</i> CIP 8294	+	+	-	+
		+	+	-	+
2	<i>Citrobacter diversus</i> 38	+	+	-	+
		+	+	-	+
3	<i>Citrobacter freundii</i> CIP 5732	+	+	-	+
		+	+	-	+
4	<i>Citrobacter freundii</i> 23	+	+	-	+
		+	+	-	+
5	<i>Enterobacter agglomerans</i> 11	+	+	+	+
		+	+	+	+
6	<i>Enterobacter aerogenes</i> ATCC 13048	+	+	+	+
		+	+	+	+
7	<i>Enterobacter aerogenes</i> CIP 10 36 59	+	+	+	+
		+	+	+	+
8	<i>Enterobacter cloacae</i> 10	+	+	+	+
		+	+	+	+
9	<i>Enterobacter cloacae</i> 128*	+	+	+	+
		+	+	+	+
10	<i>Enterobacter cloacae</i> Fb2	+	+	-	+
		+	+	-	+
11	<i>Enterobacter cloacae</i> Fb3	+	+	-	+
		+	+	-	+
12	<i>E. coli</i> CIP 5530	+	+	+	+
		+	+	+	+
13	<i>E. coli</i> CIP 54117	+	+	+	+
		+	+	+	+
14	<i>E. coli</i> CIP 54127	+	+	+	+
		+	+	+	+

INCLUSIVITY (1997)					
No	Strain	Petrifilm 14 h	Petrifilm 24 h (35°C)		VRBL
			Growth	Gas production	
15	<i>Hafnia alvei</i> 168	+	+	-	+
		+	+	-	+
16	<i>Klebsiella oxytoca</i> 42	+	+	+	+
		+	+	+	+
17	<i>Klebsiella oxytoca</i> 57	+	+	+	+
		+	+	+	+
18	<i>Klebsiella pneumoniae</i> 28	+	+	+	+
		+	+	+	+
19	<i>Klebsiella pneumoniae</i> CIP 8291	+	+	+	+
		+	+	+	+
20	<i>Serratia liquefaciens</i> 8	+	+	-	+
		+	+	-	+

INCLUSIVITY (2021)										
No	Strain	Reference	Origin	Dilution	PCA CFU/ plate	Reference method		NEOGEN Petrifilm RCC (35°C)		
						ISO 4831 (LST) (Gaz producing +/-)	ISO 4832 VRBL (CFU/Plate)	14h	24h	24h
								Total coliforms (CFU/Petrifilm)	Total coliforms (CFU/Petrifilm)	Gas producing coliforms (CFU/Petrifilm)
1	<i>Citrobacter farmeri</i>	Ad1116	Environme nt	-6	>150	+	>150	>150	>150	0
				-7	170		83	81	84	0
				-8	11		10	4	6	0
2	<i>Citrobacter freundii</i>	35	Green beans	-6	>150	+	>150	>150	>150	>150
				-7	24		24	25	25	25
				-8	4		4	2	2	2
3	<i>Citrobacter freundii</i>	Ad1326	Egg product	-6	>150	+	>150	>150	>150	0
				-7	39		34	31	34	0
				-8	3		6	1	1	0
4	<i>Citrobacter freundii</i>	Adria 59	/	-6	>150	+d	>150	>150	>150	0
				-7	54		49	41	43	0
				-8	6		5	4	4	0
5	<i>Citrobacter gillenii</i>	Ad343	Food	-6	>150	+	>150	>150	>150	>150
				-7	57		46	42	43	43
				-8	4		1	5	6	6
6	<i>Citrobacter koseri</i>	Ad2731	Sprouts	-6	>150	-	>150	>150	>150	0
				-7	111		81	111	112	0
				-8	9		13	11	11	0
7	<i>Citrobacter youngae</i>	Ad1372	Water	-6	>150	+	>150	>150	>150	>150
				-7	101		75	68	72	72
				-8	9		4	6	6	6

INCLUSIVITY (2021)										
No	Strain	Reference	Origin	Dilution	PCA CFU/ plate	Reference method		NEOGEN Petrifilm RCC (35°C)		
						ISO 4831 (LST) (Gaz producing +/-)	ISO 4832 VRBL (CFU/Plate)	14h	24h	24h
								Total coliforms (CFU/Petrifilm)	Total coliforms (CFU/Petrifilm)	Gas producing coliforms (CFU/Petrifilm)
8	<i>Cronobacter malonaticus</i>	E684	/	-6	>150	-	>150	>150	>150	>150
				-7	54		33	23	25	25
				-8	0		0	0	0	0
9	<i>Cronobacter malonaticus</i>	E752	Baby food	-6	>150	+	30	7	9	9
				-7	34		0	0	0	0
				-8	6		0	0	0	0
10	<i>Cronobacter sakazakii</i>	Ad2418	Infant formula	-6	>150	-	>150	>150	>150	>150
				-7	65		72	59	63	63
				-8	7		7	10	10	10
11	<i>Enterobacter agglomerans</i>	74	Cheese	-6	156	+	139	56	83	83
				-7	13		10	10	11	11
				-8	0		1	1	1	1
12	<i>Enterobacter aerogenes</i>	CIP 6086	/	-6	>150	-	>150	>150	>150	>150
				-7	104		95	77	79	79
				-8	9		4	4	4	4
13	<i>Enterobacter cloacae</i>	58	Food	-6	>150	-	>150	>150	>150	>150
				-7	78		64	68	69	69
				-8	5		6	4	4	4
14	<i>Enterobacter hormaechei</i>	Ad1373	Water	-6	>150	-	>150	>150	>150	>150
				-7	123		82	79	80	80
				-8	7		9	7	8	8
15	<i>Enterobacter intermedius</i>	60	Beans	-6	>150	-	127	77	90	90
				-7	15		14	9	10	10
				-8	3		2	1	1	1

INCLUSIVITY (2021)										
No	Strain	Reference	Origin	Dilution	PCA CFU/ plate	Reference method		NEOGEN Petrifilm RCC (35°C)		
						ISO 4831 (LST) (Gaz producing) +/-)	ISO 4832 VRBL (CFU/Plate)	14h	24h	24h
								Total coliforms (CFU/Petrifilm)	Total coliforms (CFU/Petrifilm)	Gas producing coliforms (CFU/Petrifilm)
16	<i>Enterobacter kobei</i>	Ad342	Food	-6	>150	+d	>150	>150	>150	>150
				-7	50		36	27	31	31
				-8	2		1	2	2	2
17	<i>Enterobacter kobei</i>	Ad706	Milk powder	-6	>150	+d	>150	>150	>150	>150
				-7	48		36	27	30	30
				-8	6		2	3	5	5
18	<i>Escherichia coli</i>	Ad1422	Infant formula	-6	>150	+	>150	>150	>150	>150
				-7	85		77	80	83	83
				-8	11		7	9	9	9
19	<i>Escherichia coli</i>	Ad2001	Chicken meat	-6	>150	+	>150	>150	>150	>150
				-7	65		52	39	41	41
				-8	7		3	2	2	2
20	<i>Escherichia coli</i>	Ad228	Fish	-6	>150	+	>150	>150	>150	>150
				-7	62		57	45	45	45
				-8	4		8	2	2	2
21	<i>Escherichia coli</i> O157:H7	CIP 103571	Clinic	-6	>150	+	>150	>150	>150	>150
				-7	90		100	66	66	66
				-8	5		4	8	8	8
22	<i>Escherichia vulneris</i>	11	Liquid egg	-6	>150	+d	>150	>150	>150	>150
				-7	69		55	55	58	58
				-8	6		4	2	3	3
23	<i>Escherichia vulneris</i>	127	Raw milk	-6	>150	+d	>150	>150	>150	>150
				-7	67		59	62	62	62
				-8	7		6	9	9	9

INCLUSIVITY (2021)										
No	Strain	Reference	Origin	Dilution	PCA CFU/ plate	Reference method		NEOGEN Petrifilm RCC (35°C)		
						ISO 4831 (LST) (Gaz producing) +/-)	ISO 4832 VRBL (CFU/Plate)	14h	24h	24h
								Total coliforms (CFU/Petrifilm)	Total coliforms (CFU/Petrifilm)	Gas producing coliforms (CFU/Petrifilm)
24	<i>Hafnia alvei</i>	Ad2274	Pasteurized cheese	-6	>150	+d	>150	>150	>150	0
				-7	60		32	27	29	0
				-8	7		1	4	7	0
25	<i>Klebsiella oxytoca</i>	Ad1371	Water	-6	100	+	79	76	80	80
				-7	7		8	5	7	7
				-8	1		1	0	0	0
26	<i>Klebsiella oxytoca</i>	CIP 7932	Medicinal product	-6	150	-	112	88	96	96
				-7	12		13	5	7	7
				-8	2		0	0	0	0
27	<i>Klebsiella pneumonia</i>	Ad1374	Water	-6	>150	+/-	>150	>150	>150	>150
				-7	75		59	59	62	62
				-8	5		8	8	8	8
28	<i>Kluyvera ascorbata</i>	Ad229	Fish	-6	>150	+/-	>150	152	170	164
				-7	38		23	14	18	18
				-8	6		2	2	2	2
29	<i>Leclercia adecarboxylata</i>	Ad707	Milk powder	-6	78	+/-	67	45	49	49
				-7	6		4	6	6	6
				-8	0		0	1	1	1
30	<i>Pantoea agglomerans</i>	A00L065	Cheese	-6	>150	+/-	>150	>150	>150	>150
				-7	48		44	39	41	41
				-8	4		2	7	8	8

EXCLUSIVITY (1997)						
No	Strain	Petrifilm 14 h	Petrifilm 24 h (35°C)		VRBL	PCA
			Number of coliforms	Number of gas producing coliforms		
1	<i>Aeromonas hydrophila</i> CIP 5750	+ 24 (-7) + 23 (-7)	+ 30 (-7) + 25 (-7)	+ 29 (-7) + 24 (-7)	Typical colonies (yellow halo) + 17 (-7) + 22 (-7)	+
2	<i>Aeromonas hydrophila</i> CIP 7430	+ 44 (-7) + 53 (-7)	+ 49 (-7) + 53 (-7)	+ 19 (-7) + 6 (-7)	+ 133 (-6) + 102 (-6) Typical colonies with bleaching halo	
3	<i>Aeromonas salmonicida</i> Ha 15	- -	- -	- -	- -	+
4	<i>Aeromonas sobria</i> CIP 7433	- -	- -	- -	+ 70 (-6) + 93 (-6) Typical colonies with bleaching halo	+
5	<i>Bacillus circulans</i> ATCC 4313	- -	- -	- -	- -	+
6	<i>Bacillus subtilis</i> ATCC 6633	- -	- -	- -	- -	+
7	<i>Lactobacillus paracasei</i> ATCC 10746	- -	- -	- -	- -	+
8	<i>Lactobacillus plantarum</i> 140	- -	- -	- -	- -	+
9	<i>Proteus mirabilis</i> 54	+ 100 (-7) + 88 (-7)	+ 101 (-7) + 88 (-7)	- -	+ 91 (-7) + 114 (-7)	+
10	<i>Proteus vulgaris</i> 56	+ 28 (-7) + 31 (-7)	+ 33 (-7) + 31 (-7)	- -	Dark pink colonies with yellow halo, size ≈ 5 mm + 125 (-6) + 118 (-6)	+
11	<i>Pseudomonas aeruginosa</i> ATCC 27853	- -	- -	- -	- -	
12	<i>Pseudomonas fluorescens</i> CIP 5690	- -	- -	- -	- -	+
13	<i>Salmonella enteritidis</i> 2532	+ 168 (-7) + 166 (-7)	+ 173 (-7) + 183 (-7)	- -	- - Non typical pink colonies	+

EXCLUSIVITY (1997)						
No	Strain	Petrifilm 14 h	Petrifilm 24 h (35°C)		VRBL	PCA
			Number of coliforms	Number of gas producing coliforms		
14	<i>Salmonella enteritidis</i> CIP 8297	+ 102 (-7) + 85 (-7)	+ 102 (-7) + 85 (-7)	- -	Non typical pink colonies with red halo size≈ 0,5 mm	+
					- -	
15	<i>Salmonella infantis</i> 2556	+ 77 (-7) + 81 (-7)	+ 79 (-7) + 84 (-7)	- -	- -	+
					Pink colonies (1 mm Ø) non typical	
16	<i>Salmonella</i> Thyphimurium CIP 5858	+ 14 (-7) + 19 (-7)	+ 15 (-7) + 20 (-7)	- -	Small non typical pink colonies	+
					- -	
17	<i>Shigella sonnei</i> ATCC 29930	+ 20 (-7) + 32 (-7)	+ 20 (-7) + 31 (-7)	- -	+ 23 (-7) + 31 (-7)	+

EXCLUSIVITY (2021)													
No	Strain	Reference	Origin	PCA		Reference method			NEOGEN Petrifilm RCC				Identification (API 20E)
				Dilution	CFU/ plate	Dilution	ISO 4831	ISO 4832 VRBL (CFU/Plate)	Dilution	14h Total coliforms (CFU/Petrifilm)	24h Total coliforms (CFU/Petrifilm)	24h Gas producing coliforms (CFU or +/- ?)	
1	<i>Enterococcus faecalis</i>	ATCC 29212	/	-7	108	-5	-	0	-5	0	0	0	/
				-8	11	-6		0	-6	0	0	0	
2	<i>Erwinia carotovora</i>	CIP 103762	/	-6	108	-5	-	0	-5	0	0	0	/
				-7	10	-6		0	-6	0	0	0	
3	<i>Lactobacillus plantarum</i>	CIP A159	/	-7	36	-5	-	0	-5	0	0	0	/
				-8	5	-6		0	-6	0	0	0	
4	<i>Pluralibacter gergoviae</i>	761	Unknown	-7	50	-6	-	>150	-5	>150	>150	>150	<i>Enterobacter gergoviae</i> (99,9%)
				-8	3	-7		55	-6	40	40	40	
5	<i>Proteus vulgaris</i>	43	Ham	-6	>150	-5	-	>150	-5	>150	>150	0	<i>Proteus vulgaris</i> (98,7%)
				-7	30	-6		17 (>0,5mm) >150 (<0,5mm)	-6	85	85	0	
				-8	0	-7		12	-7	9	9	0	
6	<i>Providencia rettgeri</i>	112	Egg white	-7	47	-6	-	>150	-6	>150	>150	0	<i>Providencia rettgeri</i> (99,9%)
				-8	4	-7		46	-7	9	9	0	
7	<i>Raoultella terrigena</i>	Ad1368	Water	-7	32	-6	+	>150	-6	>150	>150	>150	<i>Raoultella terrigena</i> (91,0%)
				-8	3	-7		46	-7	27	27	27	
8	<i>Salmonella enteritidis</i>	CIP 8297	/	-7	100	-6	-	>150	-6	>150	>150	0	<i>Salmonella</i> spp. (89,6%)
				-8	12	-7		115	-7	91	91	0	
9	<i>Serratia liquefaciens</i>	5	Egg	-7	92	-6	+	>150	-6	>150	>150	0	<i>Serratia liquefaciens</i>
				-8	16	-7		85	-7	91	91	0	
10	<i>Serratia marcescens</i>	Ad447	Raw milk	-7	104	-6	-	>150	-6	>150	>150	0	<i>Serratia marcescens</i> (96,4%)
				-8	9	-7		113	-7	115	115	0	
11	<i>Shigella flexneri</i>	CIP 8248	/	-7	44	-6	+	>150	-6	>150	>150	0	<i>Shigella</i> spp. (69,1%)
				-8	9	-7		63	-7	64	64	0	

EXCLUSIVITY (2021)													
No	Strain	Reference	Origin	PCA		Reference method			NEOGEN Petrifilm RCC				Identification (API 20E)
				Dilution	CFU/ plate	Dilution	ISO 4831	ISO 4832 VRBL (CFU/Plate)	Dilution	14h	24h	24h	
										Total coliforms (CFU/Petrifilm)	Total coliforms (CFU/Petrifilm)	Gas producing coliforms (CFU or +/- ?)	
12	<i>Staphylococcus aureus</i>	CIP 65.8	Clinic	-7	67	-5	+	0	-5	0	0	0	/
				-8	9	-6		0	-6	0	0	0	
13	<i>Yersinia enterocolitica</i>	AC066	Poultry	-7	50	-6	-	>150	-6	>150	>150	0	<i>Yersinia enterocolitica</i> (99,2%)
				-8	1	-7		36	-7	20	23	0	