



***AFNOR validation following the ISO 16140 standard of the  
RayAI Salmonella Optima method***

***Summary report***

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## APPENDICES

# 1 Introduction

## 1.1 Validation references

The *Salmonella* OPTIMA method has been validated for the company Bioline with the certificate number **BLN 26/2 – 03/04** in March 2004. Bioline allowed RayAl to use the first validation results.

The *Salmonella* OPTIMA method (RayAl) has been validated according to the reference method EN ISO 16140:2003, with respect to the reference method EN ISO 6579:2002.

## 1.2 Protocol and principle of the alternative method

### 1.2.1 Protocol

The diagram summarising the method is shown in appendix A.

The protocol is the following:

- enrichment in buffered peptone water incubated for 16 to 20 hours at  $37^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ,
- then inoculation of 0.1ml in RVS broth, incubated 18 to 24 hours at  $41.5^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ,
- followed by an immuno-enzymatic test after heating of an aliquot of RVS broth.

Positive results ( $\text{OD} > 0.200$ ) with OPTIMA *Salmonella* tests have to be confirmed by streaking the non-heated RVS broth on two different selective media (XLD and another media):

- and then, performing the classical tests described in methods standardized by CEN, ISO or AFNOR, including a purification step
- or, performing a biochemical gallery without prior strain purification from a typical colony of salmonella if it is well isolated

On the other hand, assays were made on samples tested during the accuracy test to evaluate the possibility of keeping the RVS broth for 48 hours at  $5^{\circ}\text{C} \pm 3^{\circ}\text{C}$  after incubation to verify that this conservation does not modify the result.

### 1.2.2 Principle of the method

RayAl *Salmonella* OPTIMA is based on a three-step, sandwich-type ELISA (Enzyme Linked ImmunoSorbent Assay) using:

- a microtitre plate coated with antibodies specific for *Salmonella*, directed against flagellar antigens of *Salmonella*
- and ready-to-use reagents.

The assay reliably recovers and detects low levels of motile *Salmonella*, after the steps of enrichment and a heating shock which allows the release of *Salmonella* antigens possibly presents in the analysed sample.

The reading of the microtitre plate is done with a spectrophotometer at an optical density of 450 nm.

## 1.3 Application scope

All food and feed products  
Environmental samples (except breeding samples)

## 1.4 Reference method

The validation study was carried out by reference to the EN ISO 6579:2002 (#) standard method.  
The diagram summarising the method is shown in annex A.

## 1.5 Background of certification

The *Salmonella* OPTIMA method has been validated with the certificate number **BLN 26/2 – 03/04** in March 2004. The reference method was: EN ISO 6579 : 2002 « Horizontal method for the detection of *Salmonella* spp. ». The data from the original *Salmonella* Optima validation of 2004 are shown in Annex B

In this study, several **modifications** were studied in the alternative method:

- 1 Confirmation procedures: the identification by a biochemical gallery without prior strain purification from a typical colony of *Salmonella*.
- 2 Possibility to store the non heated RVS broths for 48 hours at 5°C +/- 3°C before performing the OPT IMA *Salmonella* test: these tests were done on all positive samples of the relative accuracy, relative specificity and relative sensitivity study.
- 3 During the ELISA procedure, the last incubation before adding the Stop solution was 15 minutes. Tests on negative samples were performed with 15 and 30 minutes at 20-25°C in order to check that this extension of incubation did not generate false positive results.  
Tests conducted by the manufacturer on about thirty products had been presented to the Technical Committee in May 2007: they did not show significant OD changes for negative results.

The renewal study was therefore reviewed to conform to new standards and to test the proposed modifications. Some of the results of initial study have been resumed:  
- in the relative accuracy, relative specificity and relative sensitivity study,  
- in the inclusivity / exclusivity study.

## 2 Comparative study

### 2.1 Relative accuracy, relative specificity and relative sensitivity

The aim of this study, according to the reference document ISO 16140, is to compare the performances of the two methods:

- the reference method EN ISO 6579:2002,
  - the RayAI *Salmonella* OPTIMA method,
- on samples naturally contaminated and not contaminated with *Salmonella*.

#### 2.1.1 Number and nature of the samples

The categories tested were the following:

- meat products: raw meats, poultry and delicatessen products
- dairy products: unpasteurized and pasteurized products, milk powders
- seafood products and vegetables
- miscellaneous products including pastries, eggs and egg-based products and ready-to-eat meals
- feed: cattle cakes, meal and feed, pet food (wet and dry)
- environmental samples: surfaces, scraps, various waters

According to the ISO 16140 standard, a minimum of 60 products per category must be analysed, with around 50% of positive products (at least 30 results) and 50% of negative products.

In the initial validation study in 2004, 403 samples were analysed, displayed in 5 categories.

The reference method was the same as the one currently used, so the results could be included in a study according to the EN ISO 16140.

The percentage of artificially contaminated samples was 63% in 2004. Only the results for natural contaminations and contaminations by mixing with naturally contaminated samples can be included. The contaminations with pure culture did not meet the requirement of the EN ISO 16140.

These results were completed.  
However, because of problems with eggproducts in the first study, linked to the RVS broth quality, the analyses with this type of products have been re-tested.

All the initial results are in the tables of appendix C, with the mention "2004".

Each category was divided into different types and the results are displayed as follows:

Categories	Types	Positive*			Negative			Total
		2004	2008	Total	2004	2008	Total	
Meat products	Raw meats	1	9	10	25	22	47	57
	Poultry	5	9	14	37	10	47	61
	Delicatessen	0	8	8	13	11	24	32
	<b>Total</b>	<b>6</b>	<b>26</b>	<b>32</b>	<b>75</b>	<b>43</b>	<b>118</b>	<b>150</b>
Dairy products	Raw milk cheeses	16	0	16	16	0	16	32
	Pasteurized milk cheeses	12	0	12	1	0	1	13
	Milks and milk powders	0	3	3	15	7	22	25
	<b>Total</b>	<b>28</b>	<b>3</b>	<b>31</b>	<b>32</b>	<b>7</b>	<b>39</b>	<b>70</b>
Seafood products and vegetables	Fish fillets and shellfish	0	12	12	18	1	19	31
	Raw vegetables, cocoa and spices	1	13	14	31	9	40	54
	Ready-to eat vegetables	0	5	5	3	7	10	15
	<b>Total</b>	<b>1</b>	<b>30</b>	<b>31</b>	<b>52</b>	<b>17</b>	<b>69</b>	<b>100</b>
Miscellaneous	Eggs and mayonnaises	0	12	12	0	2	2	14
	Pastries / Custards	0	10	10	12	0	12	22
	Ready-to-eat meals	0	12	12	8	12	20	32
	<b>Total</b>	<b>0</b>	<b>34</b>	<b>34</b>	<b>20</b>	<b>14</b>	<b>34</b>	<b>68</b>
Feed	Cattle cakes	0	10	10	0	8	8	18
	Meals and dry pet foods	3	13	16	12	9	21	37
	Wet pet foods and raw meat for animals	0	13	13	0	8	8	21
	<b>Total</b>	<b>3</b>	<b>36</b>	<b>39</b>	<b>12</b>	<b>25</b>	<b>37</b>	<b>76</b>
Environment	Various waters	0	14	14	0	14	14	28
	Surfaces	0	11	11	0	11	11	22
	Scraps	0	6	6	0	8	8	14
	<b>Total</b>	<b>0</b>	<b>31</b>	<b>31</b>	<b>0</b>	<b>31</b>	<b>33</b>	<b>64</b>
<b>TOTAL</b>			<b>198</b>		<b>330</b>		<b>528</b>	

\* these are positive results by one or other of the methods

### 2.1.2 Artificial contaminations of the samples and percentage

Artificial contamination was achieved by using stressed contaminating suspensions, the stress treatment and efficiency of which have been determined according to EN ISO 16140 and AFNOR validation rules.

139 samples were positive after artificial contamination.

In total, out of 198 *Salmonella* positive results, 70% were obtained as a result of artificial contamination.

30% of samples were naturally contaminated.

### 2.1.3 Results of the assays

The analyses have been conducted singly using the two methods.

The results of analysed samples were presented in appendix B.

The table of the 528 results of samples is below:

	Positive reference method (R+)	Negative reference method (R-)	Total
Positive alternative method (A+)	Positive agreement A+ / R+ <b>PA = 194</b>	Positive deviation A+ / R- <b>PD = 2</b>	196
Negative alternative method (A-)	Negative deviation A- / R+ <b>ND = 2 *</b>	Negative agreement A- / R- <b>NA = 330 *</b>	332
Total	196	332	528

Legend:

A+ = confirmed positives

A- = immediate negatives **and** negatives after confirmation when presumed positive

\* not including any non-confirmed positive result

## 2.1.4 Calculation of relative accuracy (AC), relative specificity (SP) and relative sensitivity (SE)

All of these results help calculate the relative accuracy, relative sensitivity and relative specificity for each of the categories and for all of the categories, according to the formulae of the EN ISO 16140 standard.

Category	PA	NA	ND	PD	Sum N	Relative accuracy AC (%) [100x(PA+NA)]/N	N+ PA + ND	Relative sensitivity SE (%) [100xPA]/N+	N- NA + PD	Relative specificity SP (%) [100xNA]/N-
Meat products	31	43	1	0	75	98.7	32	96.9	43	100
Dairy products	30	39	1	0	70	98.6	31	96.8	39	100
Seafood & Vegetables	31	38	0	0	69	100	31	100	38	100
Miscellaneous	33	34	0	1	68	98.5	35	93.3	35	97.1
Feed	38	37	0	1	76	98.7	38	100	38	97.4
Environment	31	33	0	0	64	100	31	100	33	100
<b>TOTAL</b>	<b>194</b>	<b>224</b>	<b>2</b>	<b>2</b>	<b>422</b>	<b>99.1</b>	<b>196</b>	<b>99.0</b>	<b>226</b>	<b>99.1</b>

Note : to avoid any bias in the calculations, the 2004 negative results "Meat products" and "Vegetables" have been eliminated, i.e; 106 results. However, these results are presented in the tables of Appendix C.

For the alternative method, the values as a percentage calculated for the following three criteria according to the EN ISO 16140 standard were:

Relative accuracy : <b>AC</b>	<b>99.1 %</b>
Relative specificity : <b>SP</b>	<b>99.1 %</b>
Relative sensitivity : <b>SE</b>	<b>99.0 %</b>

The AFNOR Technical Committee asks the sensitivity of the two methods to be recalculated with consideration of all the confirmed positives (this includes the additional positives of the alternative method):

Alternative method :	Reference method :
	$(PA + ND) / (PA + PD + ND) = 99.0 \%$

## 2.1.5 Analysis of discrepancies

According to annex F of the NF EN ISO 16140 standard, the number of discrepancies for which a statistical test must be conducted in order to compare the two methods is 6.

The number of discrepancies between the reference method and the alternative method was 4.  
No statistic test has been done.

The RayAI *Salmonella* OPTIMA method and the reference method EN ISO 6579 can be considered as equivalent.

## 2.1.6 Comments on the RVS broths conservation at 2°C – 8°C for 48 h

The RVS broths were tested by *Salmonella* OPTIMA, just after incubation, then the RVS broths were kept for two days at 2°C – 8°C. The *Salmonella* Optima and confirmation tests were then repeated.

For all the tested samples, the obtained results were the same as those obtained directly after incubation.

## 2.1.7 Comments on the plate incubation time before adding the Stop solution

During the ELISA procedure, the last incubation before adding the Stop solution was 15 minutes. Tests on negative samples were performed with 15 or 30 minutes incubation at 20-25°C to verify if this extension of incubation did not generate false positive results.

Tests conducted by the manufacturer on about thirty products had been presented to the Technical Committee in May 2007: they did not show significant OD changes for negative results.

Among the 135 tested samples in this renewal study, the OD values remained negative and did not show significant variation, except for 1 result which became false positive (L19). However, the OD value for this sample was close to the threshold (OD = 0.241).

## 2.2 Relative detection level

The objective was to determine the level of contamination for which less than 50% of the responses obtained are positive and that for which more than 50% of the responses obtained are positive.

Different 'food strain matrix' couples were studied in parallel with the reference method and the RayAI Salmonella Optima method, for five representative studied categories.

These tests were not made in previous studies.

The artificial contaminations have been realised according to EN ISO 16140 and AFNOR validation rules.

The levels of detection, calculated according to the Spearman – Kärber\* method (LOD<sub>50</sub>), obtained for each combination « matrix – strain » are the followings:

Matrix	Strain	Relative detection level for the reference method (UFC / 25 g or 25 mL)	Relative detection level for the alternative method (UFC / 25 g or 25 mL)
Poultry minced meat	<i>Salmonella</i> Hadar	0.4 [0.2 – 0.6]	0.4 [0.2 – 0.6]
Raw milk	<i>Salmonella</i> Typhimurium	0.5 [0.3 – 0.8]	0.5 [0.3 – 0.8]
Fish fillet	<i>Salmonella</i> Virchow	0.5 [0.3 – 0.9]	0.5 [0.3 – 0.9]
Liquid raw egg	<i>Salmonella</i> Enteritidis	0.4 [0.2 – 0.7]	0.4 [0.2 – 0.7]
Dog petfood	<i>Salmonella</i> Senftenberg	0.5 [0.3 – 1.0]	0.5 [0.3 – 1.0]
Process water	<i>Salmonella</i> Newport	0.4 [0.3 – 0.7]	0.4 [0.3 – 0.7]

\* "Hitchins A. Proposed Use of a 50 % Limit of Detection Value in Defining Uncertainty Limits in the Validation of Presence-Absence Microbial Detection Methods, Draft 10th December, 2003".

The level of detection obtained for the alternative method is between 0.2 and 1.0 cell per 25 grams. It is identical to the one obtained for the reference method.

## 2.3 Inclusivity and exclusivity

The inclusivity and the exclusivity of the method are defined by analysis, respectively, of 50 positive strains and 30 negative strains.

### 2.3.1 Protocols

*This study was performed in 2004. Results were re-used.*

#### - Protocol for inclusivity and exclusivity

For each of the strains, a culture in buffered peptone water was made over 24 hours at 37°C, followed by the inoculation of a RVS broth incubated at 41.5°C.

Then the ELISA test was performed from BPW and from RVS broths.

### 2.3.2 Results and conclusion

Results are presented in appendix D.

All the 55 *Salmonella* strains gave positive results after BPW cultures.

After RVS broth cultures, two strains gave negative results. After culture on MSR/V agar, these two strains were detected by the test.

After culture in BPW, 10 of the 30 non-*Salmonella* strains (*Citrobacter*, *Enterobacter*, *E.coli* et *Hafnia*) gave positive results. However, after culture in RVS broth, the tests were negative.

### 3 Inter-laboratory study

#### 3.1 Study organisation

- Number of participating laboratories

15 laboratories received samples. The laboratories list is presented in appendix E.

- Matrix used

The "pasteurised milk" matrix was used to perform the inter-laboratory study.

- Strain used

The strain used for contaminations is a strain of *Salmonella* Typhimurium (origin « dairy products »).

- Number of samples per laboratory

24 samples were prepared per laboratory, and were distributed in 3 levels, with 8 samples per level.

#### 3.2 Control of experimental parameters

##### 3.2.1 Contamination rates obtained after artificial contamination

The following table shows the contamination rates obtained and estimated precisions:

Level	Samples	Targeted theoretical rate (b/25ml)	Real rate (b/25ml sample)	Estimated lower contamination limit per 25ml sample	Estimated upper contamination limit per 25ml sample
Level 0 (L0)	2-3-9-10-15-16-17-18	0	0	/	/
Low level (L1)	1-2-5-6-11-12-16-20	3	4.9	1.3	12.5
High level (L2)	7-8-13-14-21-22-23-24	30	49	38	69

##### 3.2.2 Problems of temperature recorded during transport, temperature on reception and reception times

###### 3.2.2.1 Analysis of temperature monitoring curves during transport

The temperature curves obtained following thermobutton data exploitation showed that temperatures were stable during transport and were between 0°C and 6°C for most of the laboratories. Only the lab N curve showed a period of 3 hours between -2°C et 0°C.

The laboratories stored the samples between 1°C and 6°C until the beginning of analyses at D+2.

###### 3.2.2.2 Temperatures on reception and reception times

The temperatures obtained are recorded in the following tables:

Laboratory	Reception Temperatures (°C)		Comments
	communicated by the laboratory	shown by the thermobutton	
A	3.4	0.5	
B	4.0	2.5	
C	5.4	3.6	
D	4.2	3.8	
E	8.0	5.5	
F	20.0	2.2	
G	4.8	4.0	
H	7.1	3.9	
I	5.4	4.2	
J	6.0	2.5	
K	2.4	1.9	
L	5.5	3.1	
M	6.0	3.6	
N	Not communicated	2.0	
O	6.0	3.6	

The 15 laboratories received the samples at D+1. The delivery temperatures were acceptable for all of them. The laboratory F has claimed delivery temperature above 8°C. After analysis of temperature curves, the temperature on reception was acceptable.

All the laboratories performed the analyses.

### 3.2.3 Conclusion

The results from all the 15 participating laboratories can be analysed after considering the conditions of shipment and delivery.

## 3.3 Results

### 3.3.1 Results obtained by cooperating laboratories

The detailed results are presented in appendix E and the following tables give a synthesis of the results obtained by all the laboratories.

#### Positive results obtained by the reference method

Laboratories	Levels of contamination					
	L0		L1		L2	
	Obtained	Nb samples	Obtained	Nb samples	Obtained	Nb samples
Lab A	0	8	7	8	8	8
Lab B	0	8	8	8	8	8
Lab C	0	8	8	8	8	8
Lab D	0	8	8	8	8	8
Lab E	0	8	8	8	8	8
Lab F	/	8	/	8	/	8
Lab G	0	8	8	8	8	8
Lab H	0	8	8	8	8	8
Lab I	0	8	8	8	8	8
Lab J	0	8	8	8	8	8
Lab K	0	8	8	8	8	8
Lab L	0	8	8	8	8	8
Lab M	0	8	8	8	8	8
Lab N	0	8	8	8	8	8
Lab O	0	8	8	8	8	8

#### Positive results obtained by the alternative method

Laboratories	Levels of contamination					
	L0		L1		L2	
	Obtained	Nb samples	Obtained	Nb samples	Obtained	Nb samples
Lab A	0	8	7	8	8	8
Lab B	0	8	8	8	8	8
Lab C	0	8	8	8	8	8
Lab D	0	8	8	8	8	8
Lab E	0	8	8	8	8	8
Lab F	/	8	/	8	/	8
Lab G	0	8	8	8	8	8
Lab H	0	8	8	8	8	8
Lab I	0	8	8	8	8	8
Lab J	0	8	8	8	8	8
Lab K	0	8	8	8	8	8
Lab L	0	8	8	8	8	8
Lab M	0	8	8	8	8	8
Lab N	0	8	8	8	8	8
Lab O	0	8	8	8	8	8

The laboratory F didn't send their results.

### 3.3.2 Comments (discrepancies with expected results, exclusions,... for instance)

The results of the reference method and the alternative method **were in agreement** for the 14 laboratories that performed the analyses.

### 3.4 Calculations

The results of 14 laboratories were considered.

*Note: the positive results of the alternative method were all confirmed.*

#### 3.4.1 Calculation of specificity percentage (%SP) and sensitivity percentage (%SE) for both methods

The percentages of specificity (SP) and sensitivity (SE) have been calculated with the EN ISO 16140 formulas.

**For level L0**, it is requested that the specificity percentage (%SP) should be calculated using each of the methods:

$$SP = \{1 - (FP/N_-)\} \times 100$$

where FP, number of false positives  
N<sub>-</sub>, total number of tests L0

**For levels L1 and L2**, it is requested that the sensitivity percentage (%SE) should be calculated for each of the methods, compared with the number of expected positive results:

$$SE = (TP/N_+) \times 100$$

where TP, number of true positives  
N<sub>+</sub>, total number of tests L1 or L2

The results are given in the following table:

Level	Reference method		Alternative method	
	SP/SE	LCL* %	SP/SE	LCL* %
L0	SP% = 100	98	SP% = 100	98
L1	SE% = 100	98	SE% = 100	98
L2	SE% = 100	98	SE% = 100	98
L1+L2	SE% = 100	98	SE% = 100	98

\* LCL : low critical value, defined in standard ISO 16140

#### 3.4.2 Calculation of the relative accuracy (AC)

The relative accuracy is calculated using the following formula:

$$AC = \{(PA + NA) / N\} \times 100$$

where PA, number of positive agreements  
NA, number of negative agreements

	Positive reference method (R+)	Negative reference method (R-)	Total
<b>Positive alternative method (A+)</b>	Positive agreement (A+/R+) PA = 224	Positive deviation (R-/A+) PD = 0	<b>(N+) = 224</b>
<b>Negative alternative method (A-)</b>	Negative deviation (A-/R+) ND = 0*	Negative agreement (A-/R-) NA = 112*	<b>(N-) = 112</b>
<b>Total</b>	<b>(N+) = 224</b>	<b>(N-) = 112</b>	<b>N = 336</b>

\* including no positive samples (not confirmed)

For this study, the relative accuracy is 100%.

#### 3.4.3 Analysis of discrepancies

As defined in appendix F in EN ISO 16140 standard, the minimum number of discrepancies beyond which a statistical test must be carried out to compare the two methods is 6. Therefore, this statistical test was not used because no discordance was observed between the two methods.

### 3.5 Interpretation

#### 3.5.1 Comparison of relative accuracy (AC), specificity (SP) and sensitivity (SE) values

The values obtained in the two parts of the validation study are given in the following table:

	Inter-laboratory study	Comparative study
Relative accuracy (AC)	100 %	99.1 %
Sensitivity (SE)	100 %	99.0 %
Specificity (SP)	100 %	99.1 %

The values obtained after the inter-laboratory study were equivalent to the values obtained in the comparative study.

The AFNOR Technical Committee asks that the sensitivity of the two methods be recalculated with consideration of all the confirmed positives (true positive results):

Alternative method	Reference method
$(PA + PD) / (PA + PD + ND) = 100 \%$	$(PA + ND) / (PA + PD + ND) = 100 \%$

#### 3.5.2 Accordance (DA)

The accordance is the percentage chance of finding the same result from two identical test portions analyzed in the same laboratory under repeatability conditions, in other words a single operator using the same instrument and the same reagents within the shortest feasible time interval.

The first step to calculate the accordance is to calculate the probability that two identical samples give the same result for each of the participating laboratories, and then to determine the average of the probabilities of all laboratories.

The different tables used to deduce the accordance are given in appendix F and the accordance for each of the methods at each of the levels are given in the following table:

Level	Reference method	Alternative method
L0	DA % = 100 %	DA % = 100 %
L1	DA % = 100 %	DA % = 100 %
L2	DA % = 100 %	DA % = 100 %

#### 3.5.3 Concordance

The concordance is the percentage chance of finding the same result for two identical samples analyzed in two different laboratories.

The objective is to calculate the percentage of all pairs giving the same results on all possible pairs of results.

Result tables used to make these calculations are given in appendix G and the concordance for each of the methods and for each of the levels are given in the following table:

Level	Reference method	Alternative method
L0	Concordance % = 100 %	Concordance % = 100 %
L1	Concordance % = 100 %	Concordance % = 100 %
L2	Concordance % = 100 %	Concordance % = 100 %

### 3.5.4 Odds Ratio (COR)

The concordance odds ratio is calculated using the following formula:

$$\text{COR} = \frac{\text{accordance} \times (100 - \text{concordance})}{\text{concordance} \times (100 - \text{accordance})}$$

The concordance odds ratio for each of the methods and for each of the levels is given in the following table:

Level	Reference method	Alternative method
L0	COR % = 1.00	COR % = 1.00
L1	COR % = 1.00	COR % = 1.00
L2	COR % = 1.00	COR % = 1.00

A value of 1.00 for the Odds ratio means that the degree of agreement and the agreement are equal. When the Odds ratio increases, the inter-laboratory variation becomes more predominant.

## 4 Practicability

Practicability is studied as a function of the 13 criteria defined by the Technical Committee in comparing the reference method EN ISO 6579 to the RayAl *Salmonella* OPTIMA method.

<p>1. <i>Packaging mode of the components of the method (cf package insert)</i></p> <p>2. <i>Reagent volumes (cf package insert and vial packaging)</i></p>	<p>The <i>Salmonella</i> OPTIMA kit contains the quantity of reagent necessary for 96 analyses :</p> <ul style="list-style-type: none"> <li>- 12 strips for 8 wells individually packed</li> <li>- one vial of negative control: 3 ml</li> <li>- un one vial of positive control: 3 ml</li> <li>- one vial of conjugate: 12 ml</li> <li>- one vial of substrate: 12 ml</li> <li>- one vial of stop solution: 12 ml</li> <li>- 6 vials of 10 ml of concentrated washing solution (one vial for 250 ml washing solution)</li> </ul>
<p>3. <i>Storage conditions of the elements method (cf package insert) – Expiry of non-opened products (cf package insert)</i></p>	<p>The storage temperature is 2-8°C</p> <p>The kit expiry date is shown on the box label and on the different vials.</p>
<p>4. <i>Recommendation for use after opening (cf package insert)</i></p>	<p>The kit components should be stored at 2-8°C.</p> <p>The reconstituted washing buffer should be stored at 2-8°C for a maximum of one month.</p>
<p>5. <i>Specific equipment (cf package insert)</i></p>	<p>Among the required equipment,</p> <ul style="list-style-type: none"> <li>- an air incubator at 37°C ± 1°C</li> <li>- a water bath with circulating water at 41.5°C ± 1°C or an air incubator at 41.5°C ± 1°C</li> <li>- a water bath at 85-100°C</li> <li>- a microplate reader</li> </ul>
<p>6. <i>Reagents ready for use or to be reconstituted (cf package insert)</i></p>	<p>The reagents are ready-to-use.</p> <p>The conditions of the washing buffer preparation are described in the package insert.</p>
<p>7. <i>Duration of training of the operator not familiar with the method</i></p>	<p>For an operator used to standard microbiology techniques, training for the technique requires less than 1 day.</p>

### 8. Real time handling - Flexibility of the technique relative to the number of samples to be analysed

Steps	Average time for one sample (min)		Average time for 30 samples (min)	
	Reference	Alternative	Reference	Alternative
Preparation, weighing, dilution in BPW and crushing	7	7	90	90
Transfer to selective broths (RVS and MKTTn)	3	1	45	25
Test (heating, washing, OD reading., ...)	/	100	/	130
Test (heating and automated assay procedure)	/	2	/	25
Streaking of RVS and MKTTn broths, on two selective media	10	/	150	/
<b>Average total time (per sample)</b> Manual procedure	20 minutes	108 minutes	9.5 minutes	8.2 minutes
<b>Average total time (per sample)</b> Automated procedure		10 minutes		4.7 minutes

These times correspond to negative samples for which no confirmation is necessary.

In the case of positive samples, the requested time for isolation of the RVS broth onto selective media must be added to the confirmations (approximately 1 minute). And the average time for the confirmation of a typical colony by reference method tests can be evaluated to approximately 5 minutes.

The advantage of the alternative method particularly is the possibility to sort negative samples from the suspicious samples and thus reducing the number of confirmations.

### 9. Time-to-result

Step	Time required	Time required
	RayAI OPTIMA <i>Salmonella</i> method	Reference method ISO 6579
Realisation of pre-enrichment	D0	D0
Transfer to selective broths (Rappaport-Vassiliadis Soja, MKTTn)	D1	D1
<i>Salmonella</i> OPTIMA test procedure	D1	/
Test result	<b>D2</b>	<b>/</b>
<b>Obtaining negative result (if test is negative)</b>		
Streaking of selective broths on selective media	D2	D2
Reading the plates		
Confirmation tests : identification strips, serology	D3 to D4	D3 to D4
<b>Obtaining negative result (after streaking and negative confirmation if done)</b>	<b>D3 to D6</b>	<b>D3 to D6</b>
<b>Obtaining positive result</b>		
Confirmation by reference method tests (including purification)		
- Confirmation by reference method tests (including purification)	<b>D5 to D6</b>	<b>D5 to D6</b>
- Confirmation by biochemical strip without purification (isolated colony)	<b>D4 to D5</b>	

10. Type of qualification of the operator:	Same as for the reference method
11. Common steps with the reference method	Enrichment in BPW and in RVS broths Streaking onto selective media for confirmation
12. Traceability of the results	All the results are saved in a history file in the automate or in the OD reader. A result sheet with the OD values could be printed and stored by the lab.
13. Maintenance by the laboratory	No specific maintenance, other than classical procedure for the Microtitre plate reader Note: RayAI offers a customer technical support for the possible problems during the ELISA procedure.  For DSX (or DS2 or PLab), a biannual maintenance is performed by RayAI. Weekly and monthly maintenance must be performed by the laboratory (refer to the recommendations of RayAI for each automate). In the case of using a microplate reader, that must be checked according to the manufacturer's recommendations.

## 5 Conclusion

The validation study of the methods was conducted according to the reference document EN ISO 16140.

The **comparative study** allows assessing:

- the relative accuracy, the relative sensitivity and the relative specificity,
- the relative detection level,
- the inclusivity and the exclusivity.

The performance of the *Salmonella* OPTIMA method are equivalent to those of the reference method EN ISO 6579:2002. They were determined by analysis of 528 samples distributed over five categories of products.

The relative accuracy obtained was 99.1%, the relative sensitivity 99.0% and the relative specificity 99.1%, according to the calculations required by the EN ISO 16140 standard.

4 discrepant results were obtained: 2 additional positive results and 2 false negative results.

Because the positive samples by the alternative method are positive confirmed samples, the sensitivities were recalculated relative to all positive results and are:

- 99.0% sensitivity and 100% specificity for the alternative method,
- 99.0% sensitivity and 100% specificity for the reference method.

The relative level of detection of the *Salmonella* OPTIMA method and of the reference method was evaluated by artificial contaminations of five different products, representative of the five categories tested.

It is between 0.2 and 1.0 cells of *Salmonella* per 25 g or mL of sample and is identical to the one of the reference method.

The specificity of the method is good since all the strains of *Salmonella* were detected (inclusivity) and no cross-reactions were observed in the non *Salmonella* strains tested when the complete protocol was performed (exclusivity).

The **inter-laboratory study results** obtained for all of the 14 selected laboratories show that the alternative method and the reference method have comparable values of relative accuracy, specificity and sensitivity as those obtained during the preliminary study.

The variability of the alternative method (accordance, concordance, Odds ratio) is comparable with the variability of the reference method.

Lille, October, the 13th 2008



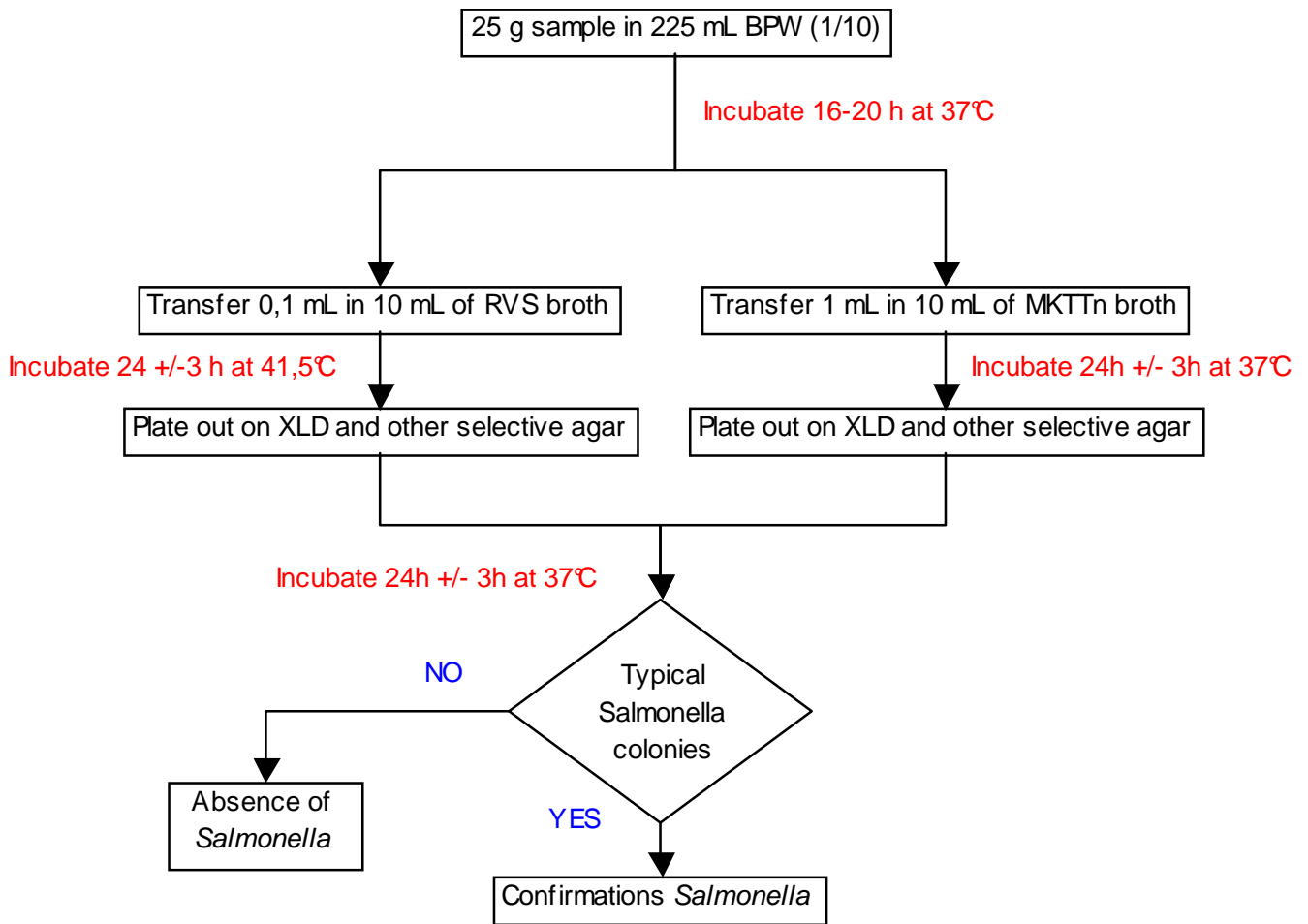
Virginie Ewe  
Responsable Etudes

# APPENDICES

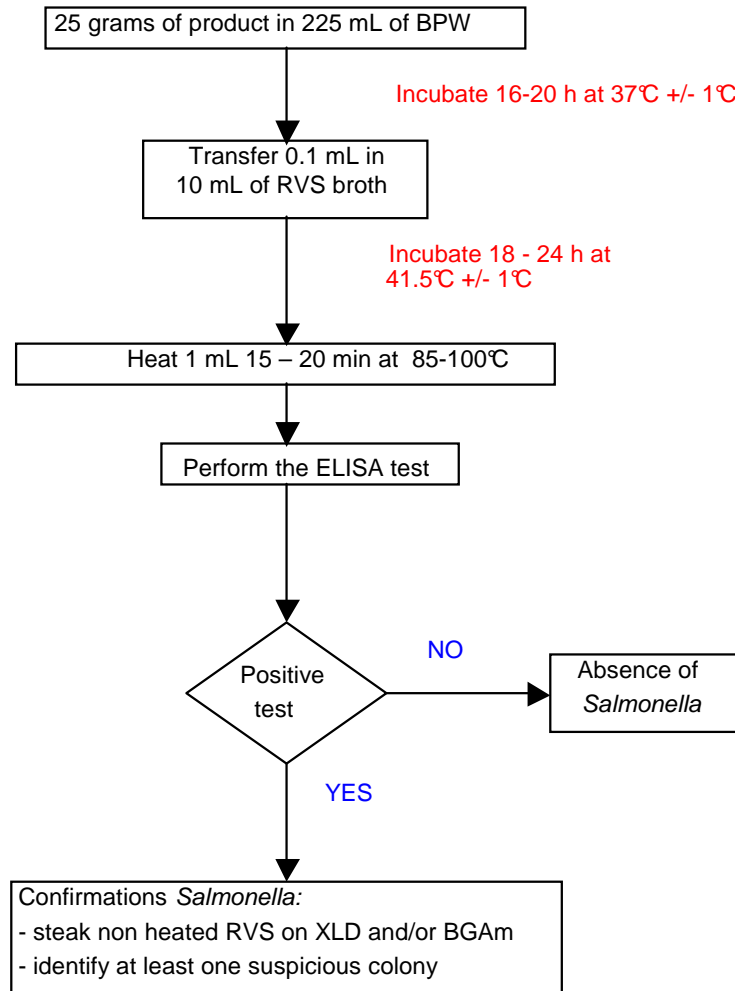
APPENDIX A :

ANALYTICAL PROTOCOLS

# EN ISO STANDARD 6579: 2002 #



## ALTERNATIVE METHOD: *Salmonella* OPTIMA



## APPENDIX B :

### MAIN RESULTS OF THE FIRST VALIDATION STUDY

## 1st Certification date

The *Salmonella* OPTIMA method has been validated for the company Bioline with the certificate number **BLN 26/2** – **03/04** in March 2004. Bioline allowed RayAl to use the first results of validation.

## Reference method used for the validation

Validation 2004 : NF EN ISO 6579 : 2002 « Horizontal method for the detection of *Salmonella* spp. »

## Main results obtained in the first validation study

### Specificity

#### Initial certification study 2004

55 strains of *Salmonella* were tested after culture in RVS broth: 96.4% gave positive results, including certain non motile strains. It should be noted that after culture on MSR/V agar, 100% of the strains answered positively.

After culture in BPW, 10 of the 30 non-*Salmonella* strains (*Citrobacter*, *Enterobacter*, *E.coli* et *Hafnia*) gave positive results. However, after culture in RVS broth, the tests were negative.

### Detection limit

#### Initial certification study 2004

Four *Salmonella* strains (*Salmonella* Enteritidis, *Salmonella* Virchow, *Salmonella* Typhimurium, *Salmonella* Infantis) were tested at different levels.

The limit of detection of the immunoenzymatic test was between  $5.8 \cdot 10^4$  et  $3.5 \cdot 10^6$  cells/ml.

### Detection limit on food products

#### Initial certification study 2004

Four *Salmonella* strains (*Salmonella* Enteritidis, *Salmonella* Virchow, *Salmonella* Typhimurium, *Salmonella* Infantis) used were used to spike different food matrices (grounded meat, raw milk, raw egg and salad), at five levels of contamination.

No discordance was observed with the reference method NF EN ISO 6579 : 2002.

Even the lowest rates (from 5 to 9 bacteria per 25 grams) were detected, irrespective of the strain and the matrix used.

### Accuracy

#### Initial certification study 2004

365 samples distributed over 5 categories (meat products, dairy products, egg products, seafood & vegetables products, feed products) were analysed: 143 samples were contaminated by *Salmonella*.

The percentage of concordance between the two methods was 98.1 %.

7 results were false negative results including 4 egg products.

Complementary tests on egg products have highlighted the importance of RVS broth: 38 positive egg products have been tested with 3 RVS broths from 3 different suppliers and no discordant results were seen with two of the three broths tested. These results therefore replace the initial results obtained on egg products.

### Collaborative study

#### Initial certification study 2004

11 laboratories conducted analyses on eight samples (two samples per contamination level).

The percentages of concordant results relative to those expected, obtained for the different collaborative studies, were as follows:

Levels of contamination per 25 mL	Negative results	Positive results
<u>Study 2004</u>		
Level 0	95 % (21/22)	5 % ( 1/22)
Level 1 : 1 - 10 <i>Salmonella</i> / 25 ml	0 % (0/22)	100 % (22/22)
Level 2 : 5 - 50 <i>Salmonella</i> / 25 ml	0 % (0/22)	100 % (22/22)
Level 3 : 10 - 100 <i>Salmonella</i> / 25 ml	0 % (0/22)	100 % (22/22)

## **Report of modifications made in the alternative method, having caused or not a validation extension**

None

### **Bibliography**

The report on external validations made by organisms other than AFNOR CERTIFICATION (date, organism, nature of validation protocol, indication of the reference method) is the following :

- AOAC RI validation, published in the Journal of AOAC with the reference 960901.  
The reference method was the BAM method 8<sup>th</sup> edition.

### **Technical reference for AFNOR validation**

The validation referential was that in effect in dates of different studies.  
Currently, it is replaced by the EN ISO 16140:2003 standard.

APPENDIX C :

RELATIVE ACCURACY, RELATIVE SPECIFICITY,  
RELATIVE SENSITIVITY

-

DETAILED RESULTS TABLES  
FOR EACH SAMPLE CATEGORY

**Total bacteria growth**

∅ : no growth

L = low

M = medium

H = high

**Distribution of flora**

A = pure culture of suspicious colonies

B = mix with a majority of suspicious colonies

C = mix with a minority of suspicious colonies

D = mix with rare suspicious colonies

E = absence of suspicious colonies

(x) : x characteristic colonies of *Salmonella* if  $x \leq 5$

Meat products

Code sample	Product	Cat.	Artif. C	Reference method NF EN ISO 6579				Alternative method RayAI OPTIMA Salmonella				Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison						
				RVS		MKTTn		Identification	Result	OD	Test result		XLD	Edel	Identification	Final result	OD	Test result	OD	Result		XLD	Edel	Identification	Final result		
				XLD	Edel	XLD	Edel																				
C4 #	Lamb meatballs	MP1	no	-LE	Ø	Ø	Ø	/	-	0,027	-	/	/	/	-	=	0,034	-									
C5 #	Collar of sheep	MP1	no	Ø	Ø	Ø	Ø	/	-	0,026	-	/	/	/	-	=	0,025	-									
C11 #	Pork chops	MP1	no	-ME	-LE	-HE	-LE	/	-	0,027	-	/	/	/	-	=	0,028	-									
C12 #	Merguez	MP1	no	-HE	-ME	-ME	Ø	/	-	0,032	-	/	/	/	-	=	0,016	-									
C13 #	Pork kidneys	MP1	no	-ME	-LE	-ME	-HE	/	-	0,031	-	/	/	/	-	=	0,012	-									
C14 #	Kangaroo meat	MP1	no	-ME	-LE	-ME	-ME	/	-	0,028	-	/	/	/	-	=	0,018	-									
C15 #	Hind meat	MP1	no	-HE	-LE	-ME	-LE	/	-	0,025	-	/	/	-LE	-	=	0,022	-									
C17 #	Beef liver	MP1	no	-ME	-ME	-HE	-HE	/	-	0,028	-	/	/	/	-	=	0,043	-									
C18 #	Beef kidneys	MP1	no	-ME	-ME	-HE	-HE	/	-	0,027	-	/	/	/	-	=	0,005	-									
I1 #	Chipolatas	MP1	no	+HC	+MC	+HB	+HC	Salmonella spp	+	1,598	+	+HC	+MC	Salmonella spp	+	=			1,782	+	+HB	+HB	Salmonella spp	+	=		
I2 #	Chipolatas	MP1	no	+MB	+MB	+HB	+HC	Salmonella spp	+	1,504	+	+MB	+MB	Salmonella spp	+	=			1,625	+	+MB	+MB	Salmonella spp	+	=		
J7 #	Thin slices of pork meat	MP1	no	-ME	-ME	-HE	-HE	/	-	0,027	-	-ME	-ME	/	-	=	0,033	-									
K1 #	Beef meatballs	MP1	no	-HE	-HE	-HE	-HE	/	-	0,037	-	-HE	-HE	/	-	=											
K2 #	Beef minced meat	MP1	no	-HE	-HE	-HE	-HE	/	-	0,042	-	-HE	-HE	/	-	=											
K3 #	Beef meatballs	MP1	no	-HE	-HE	-HE	-HE	/	-	0,047	-	-HE	-HE	/	-	=											
L4 #	Pork kidneys	MP1	no	-ME	-LE	-HE	-HE	/	-	0,037	-	-ME	-LE	/	-	=	0,050	-									
L5 #	Beef kidneys	MP1	no	-ME	-ME	-HE	-HE	/	-	0,043	-	-ME	-ME	/	-	=	0,053	-									
L9 #	Pork tongue	MP1	no	+MC	+MB	+HC	+HB	Salmonella spp	+	1,334	+	+MC	+MB	Salmonella spp	+	=			1,231	+	+MB	+MB	Salmonella spp	+	=		
L10 #	Pork chops	MP1	no	+MB	+MB	+HB	+HB	Salmonella spp	+	2,070	+	+MB	+MB	Salmonella spp	+	=			1,914	+	+MB	+MB	Salmonella spp	+	=		
L11 #	Pork tongue	MP1	no	+MB	+MB	+HB	+HC	Salmonella spp	+	1,896	+	+MB	+MB	Salmonella spp	+	=			1,648	+	+HB	+MB	Salmonella spp	+	=		
L12 #	Rumsteak	MP1	no	-HE	-ME	-HE	-HE	/	-	0,035	-	-HE	-ME	/	-	=	0,039	-									
L13 #	Horse meat	MP1	no	+MB	+MB	+HB	+HC	Salmonella spp	+	2,507	+	+MB	+MB	Salmonella spp	+	=			2,167	+	+HB	+HB	Salmonella spp	+	=		
L15 #	Pork tongue	MP1	no	-ME	-LE	-HE	Ø	/	-	0,023	-	-ME	-LE	/	-	=	0,048	-									
M3 #	Rumsteak	MP1	no	+MB	+MB	+HD	+HD	Salmonella spp	+	1,549	+	+MB	+MB	Salmonella spp	+	=			1,764	+	+MB	+MB	Salmonella spp	+	=		
M4 #	Pork kidneys	MP1	no	-ME	-LE	-HE	-HE	/	-	0,021	-	-ME	-LE	/	-	=	0,023	-									
M5 #	Beef tongue	MP1	no	-ME	-LE	-HE	-ME	/	-	0,036	-	-ME	-LE	/	-	=	0,023	-									
N6 #	Pork liver	MP1	no	+MB	+HB	+HB	+HB	Salmonella spp	+	1,478	+	+MB	+HB	Salmonella spp	+	=			1,492	+	+MB	+MB	Salmonella spp	+	=		
N7 #	Pork liver	MP1	no	-HE	-ME	-HE	-HE	/	-	0,010	-	-HE	-ME	/	-	=	0,093	-									
N8 #	Pork meat	MP1	no	-ME	-ME	-HE	-HE	/	-	0,049	-	-ME	-ME	/	-	=	0,044	-									
N10 #	Pork throat	MP1	no	-HE	-ME	-HE	-HE	/	-	0,035	-	-HE	-ME	/	-	=	0,035	-									
O5 #	Beef tongue	MP1	no	+HC	+HC	+HB	+HB	Salmonella spp	+	1,581	+	+HC	+HC	Salmonella spp	+	=			1,972	+	+HB	+HB	Salmonella spp	+	=		
2004	Pork and calf minced meat	MP1	no	-	-	-	-	/	-	0,009	-	/	/	/	-	=											
2004	Pork chops	MP1	no	-	-	-	-	/	-	0,044	-	/	/	/	-	=											
2004	Pork breast	MP1	no	+	+	+	+	Salmonella spp	+	1,365	+	+	+	Salmonella spp	+	=											
2004	Rognons de porc	MP1	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=											
2004	Beef liver	MP1	no	-	-	-	-	/	-	0,052	-	/	/	/	-	=											
2004	Pork kidneys	MP1	no	-	-	-	-	/	-	0,033	-	/	/	/	-	=											
2004	Pork liver	MP1	no	-	-	-	-	/	-	0,035	-	/	/	/	-	=											
2004	Pork breast	MP1	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=											
2004	Stuffed tomatoes	MP1	no	-	-	-	-	/	-	0,049	-	/	/	/	-	=											
2004	Beef minced meat	MP1	no	-	-	-	-	/	-	0,062	-	/	/	/	-	=											
2004	Tournedos	MP1	no	-	-	-	-	/	-	0,034	-	/	/	/	-	=											
2004	Beef liver	MP1	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=											
2004	Cow's udder	MP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=											
2004	Beef heart	MP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=											
2004	Pork chest	MP1	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=											
2004	Pork chops	MP1	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=											
2004	Horse meat	MP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=											
2004	Pork chops	MP1	no	-	-	-	-	/	-	0,007	-	/	/	/	-	=											
2004	Pork chops	MP1	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=											
2004	Calf meat	MP1	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=											
2004	Beef meatballs	MP1	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=											
2004	Rumsteak	MP1	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=											
2004	Beef minced meat	MP1	no	-	-	-	-	/	-	0,026	-	/	/	/	-	=											
2004	Pork chops	MP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=											
2004	Pork chest	MP1	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=											
2004	Beef minced meat	MP1	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=											

Meat products

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579					Alternative method RayAI OPTIMA Salmonella					Compaaison	OPTIMA 30min		OPTIMA 72h +4°C					Comparison				
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel		Identification	Final result	OD	Test result	OD	Result	XLD		Edel	Identification	Final result	
				XLD	Edel	XLD	Edel																			OD
C9 #	Duck breast	MP2	no	-ME	-ME	-HE	-LE	/	-	0,049	-	/	/	/	-	=	0,051	-								
C10 #	Duck gizzards	MP2	no	-HE	-ME	-HE	-HE	/	-	0,032	-	/	/	/	-	=	0,027	-								
C16 #	Turkey meat	MP2	no	-ME	-LE	-HE	-HE	/	-	0,027	-	/	/	/	-	=	0,021	-								
I3 #	Rabbit meat	MP2	no	+MC	+MD	+HB	+HB	Salmonella spp	+	1,399	+	+MC	+MD	Salmonella spp	+	=			1,634	+	+HC	+MC	Salmonella spp	+	=	
I4 #	Rabbit meat	MP2	no	+MC	+MB	+MB	+HB	Salmonella spp	+	2,297	+	+MC	+MB	Salmonella spp	+	=			2,455	+	+MB	+MB	Salmonella spp	+	=	
J5 #	Chicken livers	MP2	no	-ME	-LE	-HE	-LE	/	-	0,044	-	-ME	-LE	/	-	=	0,049	-								
L1 #	Rabbit leg	MP2	no	-ME	-LE	-HE	-ME	/	-	0,058	-	-ME	-LE	/	-	=	0,049	-								
L2 #	Chicken leg	MP2	no	-ME	-ME	-HE	-HE	/	-	0,034	-	-ME	-ME	/	-	=	0,043	-								
L3 #	Turkey meat	MP2	no	-ME	-ME	-HE	-HE	/	-	0,048	-	-ME	-ME	/	-	=	0,086	-								
L6 #	Poultry gizzards	MP2	no	-ME	-ME	-HE	-HE	/	-	0,032	-	-ME	-ME	/	-	=	0,070	-								
L7 #	Chicken livers	MP2	no	-ME	-LE	-HE	-HE	/	-	0,024	-	-ME	-LE	/	-	=	0,032	-								
M1 #	Chicken meat	MP2	no	+MB	+MB	+HC	+HD	Salmonella spp	+	1,937	+	+MB	+MB	Salmonella spp	+	=			2,048	+	+HB	+MB	Salmonella spp	+	=	
M2 #	Chicken livers	MP2	no	+MB	+MB	+HC	+HD	Salmonella spp	+	1,726	+	+MB	+MB	Salmonella spp	+	=			1,783	+	+HB	+HB	Salmonella spp	+	=	
N9 #	Chicken leg	MP2	no	+HB	+HB	+HB	+HB	Salmonella spp	+	0,651	+	+HB	+HB	Salmonella spp	+	=			0,700	+	+HD	+MC	Salmonella spp	+	=	
N12 #	Skin of chicken neck	MP2	no	-HE	-HE	-HE	-HE	/	-	0,021	-	-HE	-HE	/	-	=	0,018	-								
O4 #	Chicken leg	MP2	no	+MC	+MC	+HB	+HB	Salmonella spp	+	0,404	+	+MC	+MC	Salmonella spp	+	=			0,525	+	+MC	+MC	Salmonella spp	+	=	
O6 #	Turkey meat	MP2	no	+MC	+MB	+HB	+HB	Salmonella spp	+	1,586	+	+MC	+MB	Salmonella spp	+	=			1,876	+	+MC	+MB	Salmonella spp	+	=	
O7 #	Chicken liver	MP2	no	+HC	+MC	+HB	+HB	Salmonella spp	+	1,528	+	+HC	+MC	Salmonella spp	+	=			2,012	+	+MC	+MC	Salmonella spp	+	=	
O9 #	Turkey escalope	MP2	no	+MB	+MB	+HB	+HB	Salmonella spp	+	2,191	+	+MB	+MB	Salmonella spp	+	=			2,344	+	+HB	+MB	Salmonella spp	+	=	
2004	Ruails	MP2	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=										
2004	Chicken escalope	MP2	no	-	-	-	-	/	-	0,027	-	/	/	/	-	=										
2004	Chicken nuggets	MP2	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=										
2004	Chicken leg	MP2	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=										
2004	Chicken wings	MP2	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=										
2004	Chicken	MP2	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=										
2004	Ruails	MP2	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=										
2004	Duck legs	MP2	no	+	+	+	+	Salmonella spp	+	0,200	+	+	+	Salmonella spp	+	=										
2004	Turkey escalope	MP2	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=										
2004	Chicken Nuggets	MP2	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=										
2004	Duck meat	MP2	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=										
2004	Duck breast	MP2	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=										
2004	Turkey leg	MP2	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=										
2004	Cockerel	MP2	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=										
2004	Chicken liver	MP2	no	-	-	-	-	/	-	0,036	-	/	/	/	-	=										
2004	Chicken wings	MP2	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=										
2004	Chicken leg	MP2	no	+	+	+	+	Salmonella spp	+	2,262	+	+	+	Salmonella spp	+	=										
2004	Whole white chicken	MP2	no	-	-	-	-	/	-	0,021	-	/	/	/	-	=										
2004	Whole yellow chicken	MP2	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=										
2004	Duck meat	MP2	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=										
2004	Duck breast	MP2	mél	+	+	+	+	Salmonella spp	+	2,211	+	+	+	Salmonella spp	+	=										
2004	Turkey leg	MP2	no	-	-	-	-	/	-	0,031	-	/	/	/	-	=										
2004	Chicken wings	MP2	no	-	-	-	-	/	-	0,026	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=										
2004	Whole white chicken	MP2	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=										
2004	Whole yellow chicken	MP2	no	-	-	-	-	/	-	0,026	-	/	/	/	-	=										
2004	Cockerel	MP2	no	-	-	-	-	/	-	0,033	-	/	/	/	-	=										
2004	Poultry offals	MP2	no	-	-	-	-	/	-	0,050	-	/	/	/	-	=										
2004	Chicken wings	MP2	no	-	-	-	-	/	-	0,052	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	+	+	+	+	Salmonella spp	+	2,217	+	+	+	Salmonella spp	+	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,037	-	/	/	/	-	=										
2004	Chicken meat	MP2	no	-	-	-	-	/	-	0,025	-	/	/	/	-	=										
2004	Turkey	MP2	no	-	-	-	-	/	-	0,025	-	/	/	/	-	=										
2004	Duck meat	MP2	no	+	+	+	+	Salmonella spp	+	0,037	-	+	+	Salmonella spp	-	FN										
2004	Chicken wings	MP2	no	-	-	-	-	/	-	0,010	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=										
2004	Chicken meat	MP2	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=										
2004	Turkey	MP2	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=										
2004	Chicken legs	MP2	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=										
2004	Duck legs	MP2	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=										

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison			
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result				
				XLD	Edel	XLD	Edel																			OD	Test result	OD
C1 #	Whole ham	MP3	no	-LE	Ø	Ø	Ø	/	-	0,025	-	/	/	/	-	=	0,027	-										
C2 #	Ham	MP3	no	-ME	Ø	Ø	Ø	/	-	0,027	-	/	/	/	-	=	0,034	-										
C3 #	Saucisson	MP3	no	-ME	-LE	-ME	-ME	/	-	0,027	-	/	/	/	-	=	0,027	-										
C6 #	Saucisson	MP3	no	Ø	Ø	Ø	Ø	/	-	0,018	-	/	/	/	-	=	0,015	-										
C7 #	Meat pie	MP3	no	Ø	Ø	-HE	-ME	/	-	0,019	-	/	/	/	-	=	0,017	-										
C8 #	Terrine de campagne	MP3	no	Ø	Ø	-ME	-ME	/	-	0,019	-	/	/	/	-	=	0,018	-										
J10 #	Saucisson	MP3	no	-HE	-ME	-LE	-LE	/	-	0,028	-	-HE	-ME	/	-	=	0,026	-										
J11 #	Chorizo	MP3	no	-HE	-HE	-HE	-HE	/	-	0,044	-	-HE	-HE	/	-	=	0,103	-										
J12 #	Saucisson	MP3	no	-HE	-HE	-HE	-HE	/	-	0,042	-	-HE	-HE	/	-	=	0,140	-										
J13 #	Saucisson	MP3	no	-HE	-HE	-HE	-HE	/	-	0,044	-	-HE	-HE	/	-	=	0,048	-										
L8 #	Chipolatas	MP3	no	+MB	+HB	+HB	+HB	Salmonella spp	+	2,427	+	+MB	+HB	Salmonella spp	+	=			2,138	+	+HB	+MB	Salmonella spp	+				
L14 #	Chorizo	MP3	no	-ME	-ME	-HE	-HE	/	-	0,023	-	-ME	-ME	/	-	=	0,044	-										
M6 #	Pistachio sausage	MP3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,506	+	+MB	+MB	Salmonella spp	+	=			2,650	+	+HB	+HB	Salmonella spp	+				
M7 #	Sausage with mushrooms	MP3	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	2,191	+	+HB	+HB	Salmonella spp	+	=			2,706	+	+HB	+HB	Salmonella spp	+				
M8 #	Rosette	MP3	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	2,326	+	+HB	+HB	Salmonella spp	+	=			2,156	+	+HB	+HB	Salmonella spp	+				
M9 #	Meat pie	MP3	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	2,389	+	+MA	+HA	Salmonella spp	+	=			2,264	+	+MA	+HB	Salmonella spp	+				
M10 #	Terrine de campagne	MP3	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,420	+	+HA	+HA	Salmonella spp	+	=			2,256	+	+MA	+HB	Salmonella spp	+				
N11 #	Chipolatas	MP3	no	+HD	+HC	+HC	+HD	Salmonella spp	+	0,281	+	+HD	+HC	Salmonella spp	+	=	0,347	+	0,246	+	+HD	-HE	Salmonella spp					
O8 #	Chipolatas	MP3	no	+HB	+MB	+HB	+HB	Salmonella spp	+	2,130	+	+HB	+MB	Salmonella spp	+	=			2,279	+	+MC	+MB	Salmonella spp	+				
2004	Bacon	MP3	no	-	-	-	-	/	-	0,007	-	/	/	/	-	=												
2004	Duck gizzards	MP3	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=												
2004	Sliced turkey	MP3	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=												
2004	Smoked duck breast	MP3	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=												
2004	Chicken nugget	MP3	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=												
2004	Rillettes	MP3	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=												
2004	Ham escalope	MP3	no	-	-	-	-	/	-	0,027	-	/	/	/	-	=												
2004	Cooked bacon	MP3	no	-	-	-	-	/	-	0,005	-	/	/	/	-	=												
2004	Garlic sausage	MP3	no	-	-	-	-	/	-	0,004	-	/	/	/	-	=												
2004	Saucisson	MP3	no	-	-	-	-	/	-	0,027	-	/	/	/	-	=												
2004	White pudding	MP3	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=												
2004	Rilleaux	MP3	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=												
2004	Ham escalope	MP3	no	-	-	-	-	/	-	0,007	-	/	/	/	-	=												

Dairy products

Code sample	Product	Cat.	Artif. C	Reference method NF EN ISO 6579					Alternative method RayAI OPTIMA Salmonella					Compaaison	OPTIMA 30min		OPTIMA 72h +4°C					Comparison			
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel		Identification	Final result	OD	Test result	OD	Result	XLD		Edel	Identification	Final result
				XLD	Edel	XLD	Edel																		
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,050	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,028	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,038	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,030	-	/	/	/	-	=									
2004	"Livarot" raw milk cheese	DP1	no	-	-	-	-	/	-	0,026	-	/	/	/	-	=									
2004	"Brie de Meaux" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	1,648	+	+	+	Salmonella spp	+	=									
2004	"Brie de Meaux" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	1,675	+	+	+	Salmonella spp	+	=									
2004	"Brie de Meaux" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	1,407	+	+	+	Salmonella spp	+	=									
2004	"Brie de Meaux" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	0,801	+	+	+	Salmonella spp	+	=									
2004	"Brie de Meaux" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	0,284	+	+	+	Salmonella spp	+	=									
2004	"Morbier" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	2,170	+	+	+	Salmonella spp	+	=									
2004	"Tomme d'Auvergne" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,361	+	+	+	Salmonella spp	+	=									
2004	"Abondance" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,400	+	+	+	Salmonella spp	+	=									
2004	"Beaufort" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,885	+	+	+	Salmonella spp	+	=									
2004	"Brie de Meaux" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,806	+	+	+	Salmonella spp	+	=									
2004	"Tomme d'Auvergne" raw milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,556	+	+	+	Salmonella spp	+	=									
2004	"Crotin de Chavignol" goat milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	1,324	+	+	+	Salmonella spp	+	=									
2004	"Chabichou" goat milk cheese	DP1	mél	+	+	+	+	Salmonella spp	+	0,469	+	+	+	Salmonella spp	+	=									
2004	"Camembert" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	8,828	+	+	+	Salmonella spp	+	=									
2004	"Camembert" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	2,116	+	+	+	Salmonella spp	+	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,033	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=									
2004	"Camembert" raw milk cheese	DP1	no	+	+	+	+	Salmonella spp	+	1,552	+	+	+	Salmonella spp	+	=									
2004	"Brin de paille" cheese	DP2	no	-	-	-	-	/	-	0,036	-	/	/	/	-	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,959	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,303	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	1,039	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,676	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,343	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,224	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,383	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	1,122	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,441	+	+	+	Salmonella spp	+	=									
2004	"Camembert" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	0,091	-	+	+	Salmonella spp	-	FN									
2004	"Emmental" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	2,001	+	+	+	Salmonella spp	+	=									
2004	"Bethmale" pasteurized milk cheese	DP2	mél	+	+	+	+	Salmonella spp	+	1,649	+	+	+	Salmonella spp	+	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,021	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,025	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Raw milk	DP3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Butter	DP3	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=									
2004	Butter	DP3	no	-	-	-	-	/	-	0,010	-	/	/	/	-	=									
2004	Butter	DP3	no	-	-	-	-	/	-	0,007	-	/	/	/	-	=									
2004	Butter	DP3	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=									
2004	Butter	DP3	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=									
J3	# Raw milk	DP3	no	Ø	Ø	-ME	-ME	/	-	0,034	-	Ø	Ø	/	-	=	0,035	-							
J4	# Raw milk	DP3	no	Ø	Ø	-HE	-HE	/	-	0,035	-	Ø	Ø	/	-	=	0,033	-							
R1	# Milk powder with bifidus	DP3	yes	Ø	Ø	Ø	Ø	/	-	0,009	-	Ø	Ø	/	-	=	0,013	-							
R2	# Milk powder with bifidus	DP3	yes	Ø	Ø	Ø	Ø	/	-	0,027	-	Ø	Ø	/	-	=	0,017	-							
R3	# Milk powder with bifidus	DP3	yes	Ø	Ø	Ø	Ø	/	-	0,021	-	Ø	Ø	/	-	=	0,021	-							
S1	# Milk powder with bifidus	DP3	yes	Ø	Ø	Ø	Ø	/	-	0,012	-	Ø	Ø	/	-	=	0,017	-	0,016	-	/	/	/	-	=
S2	# Milk powder with bifidus	DP3	yes	Ø	Ø	Ø	Ø	/	-	0,011	-	Ø	Ø	/	-	=	0,010	-	0,014	-	/	/	/	-	=
S3	# Milk powder with bifidus	DP3	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,644	+	+MA	+MA	Salmonella spp	+	=	1,994	+	1,887	+	+MA	+MA	Salmonella spp	+	=
T1	# Milk powder	DP3	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,690	+	+HA	+HA	Salmonella spp	+	=			2,374	+	+HA	+MA	Salmonella spp	+	=
T2	# Milk powder	DP3	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	2,663	+	+MA	+HA	Salmonella spp	+	=			2,314	+	+MA	+HA	Salmonella spp	+	=

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison
				RVS		MKTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result	
				XLD	Edel	XLD	Edel																		
A1 #	Coalfish	SP1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,230	+	+MB	+MB	Salmonella spp	+	=			1,186	+	+MB	+HB	Salmonella spp	+	=
A2 #	Coalfish	SP1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	0,992	+	+MB	+MB	Salmonella spp	+	=			1,187	+	+HB	+HB	Salmonella spp	+	=
A3 #	Crayfish	SP1	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	1,028	+	+MA	+HA	Salmonella spp	+	=			1,227	+	+MA	+HA	Salmonella spp	+	=
A4 #	Shrimps	SP1	yes	+HA	+MA	+HA	+HA	Salmonella spp	+	1,072	+	+HA	+MA	Salmonella spp	+	=			1,096	+	+MA	+HA	Salmonella spp	+	=
A5 #	Fileted coalfish	SP1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,908	+	+MB	+MB	Salmonella spp	+	=			2,808	+	+MB	+HB	Salmonella spp	+	=
A6 #	Fileted coalfish	SP1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,800	+	+MB	+MB	Salmonella spp	+	=			2,514	+	+MB	+MB	Salmonella spp	+	=
A7 #	Carp crackling	SP1	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	1,218	+	+HB	+HB	Salmonella spp	+	=			1,242	+	+MB	+MB	Salmonella spp	+	=
A11 #	Salmon	SP1	yes	+MB	+HB	+HA	+HA	Salmonella spp	+	1,193	+	+MB	+HB	Salmonella spp	+	=			1,244	+	+HA	+HA	Salmonella spp	+	=
G1 #	Smoked salmon	SP1	yes	+HC	+HC	+HB	+HC	Salmonella spp	+	1,521	+	+HC	+HC	Salmonella spp	+	=			1,722	+	+MD	+HC	Salmonella spp	+	=
G2 #	Coalfish	SP1	yes	+HB	+MB	+HB	+HB	Salmonella spp	+	2,738	+	+HB	+MB	Salmonella spp	+	=			2,773	+	+MB	+MB	Salmonella spp	+	=
G3 #	Coalfish	SP1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,725	+	+MB	+MB	Salmonella spp	+	=			2,816	+	+MB	+HB	Salmonella spp	+	=
G4 #	Whiting	SP1	yes	+MB	+HB	+HB	+HB	Salmonella spp	+	2,460	+	+MB	+HB	Salmonella spp	+	=			2,798	+	+MB	+HB	Salmonella spp	+	=
H11 #	Hake fillet	SP1	yes	-HE	-HE	-ME	-LE	/	-	0,036	-	-HE	-HE	/	-	=	0,037	-							
2004	Fileted coalfish	SP1	no	-	-	-	-	/	-	0,015	-	/	/	/	-	=									
2004	Squid	SP1	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=									
2004	Winkles	SP1	no	-	-	-	-	/	-	0,012	-	/	/	/	-	=									
2004	Cooked shrimps	SP1	no	-	-	-	-	/	-	0,005	-	/	/	/	-	=									
2004	Peeled pink shrimps	SP1	no	-	-	-	-	/	-	0,001	-	/	/	/	-	=									
2004	Seafood cocktail	SP1	no	-	-	-	-	/	-	0,001	-	/	/	/	-	=									
2004	Fileted sardine	SP1	no	-	-	-	-	/	-	0,000	-	/	/	/	-	=									
2004	Oriental anchovy	SP1	no	-	-	-	-	/	-	0,003	-	/	/	/	-	=									
2004	Shrimp cocktail	SP1	no	-	-	-	-	/	-	0,033	-	/	/	/	-	=									
2004	Gray shrimps	SP1	no	-	-	-	-	/	-	0,007	-	/	/	/	-	=									
2004	Pink shrimps	SP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=									
2004	Cooked bulots	SP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	Shellfish	SP1	no	-	-	-	-	/	-	0,006	-	/	/	/	-	=									
2004	Winkles	SP1	no	-	-	-	-	/	-	0,009	-	/	/	/	-	=									
2004	Chopped tuna steak	SP1	no	-	-	-	-	/	-	0,012	-	/	/	/	-	=									
2004	Anchovies fillets	SP1	no	-	-	-	-	/	-	0,005	-	/	/	/	-	=									
2004	Red herring fillets	SP1	no	-	-	-	-	/	-	0,006	-	/	/	/	-	=									
2004	Seafood cocktail	SP1	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									

Seafoods and Vegetables

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result	
				XLD	Edel	XLD	Edel																		
B2 #	French beans	VP1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,244	+	+MA	+MA	Salmonella spp	+	=			2,175	+	+MA	+MA	Salmonella spp	+	=
B5 #	Spinaches	VP1	yes	+HA	+MA	+HA	+HA	Salmonella spp	+	2,471	+	+HA	+MA	Salmonella spp	+	=			2,554	+	+MA	+MA	Salmonella spp	+	=
G9 #	Rice	VP1	yes	-LE	Ø	-LE	Ø	/	-	0,059	-	-LE	Ø	/	-	=	0,030	-							
G10 #	Rice	VP1	yes	-ME	Ø	-LE	Ø	/	-	0,024	-	-ME	Ø	/	-	=	0,017	-							
G12 #	Grated carrots	VP1	yes	-ME	-ME	-HE	-HE	/	-	0,048	-	-ME	-ME	/	-	=	0,025	-							
G13 #	Tomato	VP1	yes	-ME	-ME	-HE	-HE	/	-	0,042	-	-ME	-ME	/	-	=	0,031	-							
H2 #	Spinaches	VP1	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,628	+	+HA	+HA	Salmonella spp	+	=			2,563	+	+HA	+MA	Salmonella spp	+	=
H3 #	Carrots and peas	VP1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,834	+	+MA	+MA	Salmonella spp	+	=			2,787	+	+HA	+HA	Salmonella spp	+	=
H6 #	Grated carrots	VP1	yes	-ME	-ME	-HE	-HE	/	-	0,028	-	-ME	-ME	/	-	=	0,032	-							
H7 #	Broccolis	VP1	yes	+MB	+MC	-HE	-HE	Salmonella spp	+	2,088	+	+MB	+MC	Salmonella spp	+	=			2,111	+	+MC	+MC	Salmonella spp	+	=
I9 #	Salad	VP1	yes	-ME	-LE	-ME	-ME	/	-	0,025	-	-ME	-LE	/	-	=	0,033	-							
I10 #	Salad	VP1	yes	-ME	-ME	-HE	-HE	/	-	0,038	-	-ME	-ME	/	-	=	0,033	-							
I11 #	Cabbage flower	VP1	yes	Ø	Ø	Ø	Ø	/	-	0,026	-	Ø	Ø	/	-	=	0,030	-							
L21 #	Cocoa	VP1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,192	+	+MA	+MA	Salmonella spp	+	=			1,726	+	+HA	+HA	Salmonella spp	+	=
L22 #	Cocoa	VP1	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	2,016	+	+MA	+HA	Salmonella spp	+	=			1,556	+	+HA	+HA	Salmonella spp	+	=
L23 #	Cocoa	VP1	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	1,716	+	+HA	+HA	Salmonella spp	+	=			1,624	+	+HA	+HA	Salmonella spp	+	=
N5 #	Salad	VP1	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	1,605	+	+HB	+HB	Salmonella spp	+	=			1,366	+	+MB	+MB	Salmonella spp	+	=
R8 #	Spice: chive	VP1	yes	+MA	+MA	+MA	+HA	Salmonella spp	+	1,938	+	+MA	+MA	Salmonella spp	+	=	2,679	+	2,280	+	+MA	+LA	Salmonella spp	+	=
S6 #	Cocoa	VP1	yes	+MA	+MA	+MA	+MA	Salmonella spp	+	1,728	+	+MA	+MA	Salmonella spp	+	=	2,213	+	1,827	+	+MA	+MA	Salmonella spp	+	=
S7 #	Cocoa	VP1	yes	+MA	+HA	+MA	+HA	Salmonella spp	+	2,055	+	+MA	+HA	Salmonella spp	+	=	2,206	+	2,154	+	+MA	+HA	Salmonella spp	+	=
T3 #	Cocoa	VP1	yes	Ø	Ø	Ø	Ø	/	-	0,018	-	Ø	Ø	/	-	=	0,079	-	0,010	-	/	/	/	-	=
T4 #	Cocoa	VP1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,504	+	+MA	+MA	Salmonella spp	+	=			2,082	+	+HA	+HA	Salmonella spp	+	=
2004	Green salad	VP1	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=									
2004	Macedoine of vegetables	VP1	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=									
2004	Macedoine of vegetables	VP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	Parsley	VP1	no	-	-	-	-	/	-	0,014	-	/	/	/	-	=									
2004	Cabbage	VP1	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=									
2004	Mixed vegetables of Provence	VP1	no	-	-	-	-	/	-	0,010	-	/	/	/	-	=									
2004	Spinaches	VP1	no	-	-	-	-	/	-	0,011	-	/	/	/	-	=									
2004	Mixed salad	VP1	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=									
2004	Watercress	VP1	no	-	-	-	-	/	-	0,034	-	/	/	/	-	=									
2004	Salad	VP1	no	-	-	-	-	/	-	0,015	-	/	/	/	-	=									
2004	Salad	VP1	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Basil	VP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	Parsley	VP1	no	-	-	-	-	/	-	0,016	-	/	/	/	-	=									
2004	Tarragon	VP1	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=									
2004	Grated carrots	VP1	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=									
2004	Celery	VP1	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=									
2004	Mixed salad	VP1	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=									
2004	Red cabbage	VP1	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=									
2004	Rice crack n°4	VP1	no	-	-	-	-	/	-	0,036	-	/	/	/	-	=									
2004	Rice crack n°19	VP1	no	-	-	-	-	/	-	0,022	-	/	/	/	-	=									
2004	Rice flour I	VP1	no	-	-	-	-	/	-	0,065	-	/	/	/	-	=									
2004	Rice flour A	VP1	no	+	+	+	+	Salmonella spp	+	1,943	+	+	+	Salmonella spp	+	=									
2004	Rice flour	VP1	no	-	-	-	-	/	-	0,037	-	/	/	/	-	=									
2004	Rice flour	VP1	no	-	-	-	-	/	-	0,033	-	/	/	/	-	=									
2004	Rice flour	VP1	no	-	-	-	-	/	-	0,021	-	/	/	/	-	=									
2004	Rice flour	VP1	no	-	-	-	-	/	-	0,020	-	/	/	/	-	=									
2004	Rice flour	VP1	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=									
2004	Rice flour D	VP1	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Rice flour D	VP1	no	-	-	-	-	/	-	0,029	-	/	/	/	-	=									
2004	Rice flour D	VP1	no	-	-	-	-	/	-	0,031	-	/	/	/	-	=									
2004	Rice flour D	VP1	no	-	-	-	-	/	-	0,048	-	/	/	/	-	=									
2004	Rice flour D	VP1	no	-	-	-	-	/	-	0,048	-	/	/	/	-	=									
2004	Rice crack	VP1	no	-	-	-	-	/	-	0,015	-	/	/	/	-	=									
B1 #	French beans / potatoes	VP2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,901	+	+MA	+MA	Salmonella spp	+	=			2,912	+	+MA	+MA	Salmonella spp	+	=
B3 #	Mashed carrots	VP2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,628	+	+MA	+MA	Salmonella spp	+	=			2,338	+	+HA	+HA	Salmonella spp	+	=
B4 #	Vegetable stirfry	VP2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,730	+	+HA	+HA	Salmonella spp	+	=			2,677	+	+MA	+MA	Salmonella spp	+	=
G11 #	Lenses	VP2	yes	-HE	-HE	-HE	-HE	/	-	0,048	-	-HE	-HE	/	-	=	0,030	-							
H5 #	Mixed vegetables	VP2	yes	-HE	-ME	-HE	-HE	/	-	0,048	-	-HE	-ME	/	-	=	0,033	-							
H9 #	Mixed vegetables	VP2	yes	-HE	-ME	-ME	-LE	/	-	0,037	-	-HE	-ME	/	-	=	0,031	-							
H10 #	Mixed vegetables	VP2	yes	+MB	+MB	+HA	+HA	Salmonella spp	+	2,944	+	+MB	+MB	Salmonella spp	+	=			2,891	+	+HB	+HB	Salmonella spp	+	=
I12 #	Cooked carrots	VP2	yes	Ø	Ø	Ø	Ø	/	-	0,024	-	Ø	Ø	/	-	=	0,032	-							
I13 #	Comcombre with the cream	VP2	yes	-ME	-HE	-HE	-ME	/	-	0,035	-	-ME	-HE	/	-	=	0,040	-							
L19 #	Spinaches	VP2	no	-ME	-ME	-HE	-ME	/	-	0,032	-	-ME	-ME	/	-	=	0,241	+							
L20 #	Spinaches	VP2	no	-ME	-ME	-HE	-ME	/	-	0,054	-	-ME	-ME	/	-	=	0,028	-							
N4 #	Vegetable Poêlée	VP2	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	2,456	+	+HB	+HB	Salmonella spp	+	=			2,331	+	+HB	+MB	Salmonella spp	+	=
2004	Seasoned grated carrots	VP2	no	-	-	-	-	/	-	0,035	-	/	/	/	-	=									
2004	Country stirfry	VP2	no	-	-	-	-	/	-	0,017	-	/	/	/	-	=									
2004	Picnic vegetable salad	VP2	no	-	-	-	-	/	-	0,015	-	/	/	/	-	=									



Code sample	Product	Cat.	Artif. C	Reference method NF EN ISO 6579					Alternative method RayAI OPTIMA Salmonella					Compaaision	OPTIMA 30min		OPTIMA 72h +4°C					Comparison			
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel		Identification	Final result	OD	Test result	OD	Result	XLD		Edel	Identification	Final result
				XLD	Edel	XLD	Edel																		
A8 #	Soup of the fisherman	MS3	yes	+MB	+HB	+HA	+HB	Salmonella spp	+	0,750	+	+MB	+HB	Salmonella spp	+	=			0,699	+	+MB	+MB	Salmonella spp	+	=
A9 #	Paella	MS3	yes	+MB	+HB	+HB	+HB	Salmonella spp	+	1,047	+	+MB	+HB	Salmonella spp	+	=			1,039	+	+HB	+HB	Salmonella spp	+	=
A10 #	Paella	MS3	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	1,075	+	+HB	+HB	Salmonella spp	+	=			1,071	+	+HB	+HC	Salmonella spp	+	=
A12 #	Fish with sauce	MS3	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	1,177	+	+HA	+HA	Salmonella spp	+	=			1,087	+	+MA	+HA	Salmonella spp	+	=
G5 #	Potatoes with anchovies	MS3	yes	-HE	-HE	-HE	-HE	/	-	0,041	-	-HE	-HE	/	-	=	0,030	-							
G6 #	Cooked salmon	MS3	yes	-ME	Ø	Ø	Ø	/	-	0,022	-	-ME	Ø	/	-	=	0,023	-							
G7 #	Salmon roll	MS3	yes	Ø	Ø	Ø	Ø	/	-	0,024	-	Ø	Ø	/	-	=	0,026	-							
G8 #	Salmon roll	MS3	yes	Ø	Ø	Ø	Ø	/	-	0,024	-	Ø	Ø	/	-	=	0,031	-							
H1 #	Soup	MS3	yes	Ø	Ø	Ø	Ø	/	-	0,025	-	Ø	Ø	/	-	=	0,032	-							
H4 #	Vegetables soup	MS3	yes	Ø	Ø	Ø	Ø	/	-	0,030	-	Ø	Ø	/	-	=	0,026	-							
H8 #	Tomato sauce	MS3	yes	-ME	-ME	Ø	Ø	/	-	0,090	-	-ME	-ME	/	-	=	0,030	-							
R4 #	Dehydrated soup with 9 vegetables	MS3	yes	-LE	Ø	Ø	Ø	/	-	0,009	-	-LE	Ø	/	-	=	0,021	-							
R5 #	Dehydrated soup with 9 vegetables	MS3	yes	-LE	-LE	-LE	-ME	/	-	0,020	-	-LE	-LE	/	-	=	0,025	-							
R6 #	Stuffed cabbage	MS3	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	1,980	+	+MA	+HA	Salmonella spp	+	=	2,561	+	2,278	+	+MA	+MA	Salmonella spp	+	=
R7 #	Pastes with tomato	MS3	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	1,726	+	+MA	+HA	Salmonella spp	+	=	2,547	+	2,247	+	+MA	+MA	Salmonella spp	+	=
S4 #	Dehydrated vegetables soup	MS3	yes	Ø	Ø	Ø	Ø	/	-	0,015	-	Ø	Ø	/	-	=	0,016	-	0,016	-	/	/	/	-	=
S5 #	Dehydrated soup	MS3	yes	-ME	-ME	Ø	Ø	/	-	0,024	-	-ME	-ME	/	-	=	0,022	-	0,029	-	/	/	/	-	=
S8 #	Dehydrated tomatoes soup	MS3	yes	-LE	-ME	Ø	-LE	/	-	0,010	-	-LE	-ME	/	-	=	0,008	-	0,030	-	/	/	/	-	=
T5 #	Beef with bolognaise sauce	MS3	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,527	+	+MA	+MA	Salmonella spp	+	=			1,421	+	+MA	+MA	Salmonella spp	+	=
T6 #	Beef meatballs with cumin	MS3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,034	+	+MB	+MB	Salmonella spp	+	=			0,915	+	+MB	+MB	Salmonella spp	+	=
T7 #	Cassoulet	MS3	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,091	+	+MA	+MA	Salmonella spp	+	=			0,906	+	+MA	+MA	Salmonella spp	+	=
T8 #	Salmon fillet with sauce	MS3	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,177	+	+MA	+MA	Salmonella spp	+	=			1,018	+	+HA	+HA	Salmonella spp	+	=
T9 #	Beef bourguignon with sauce	MS3	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,575	+	+MA	+MA	Salmonella spp	+	=			2,156	+	+HA	+HA	Salmonella spp	+	=
T10 #	Fish with sauce	MS3	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	2,509	+	+MA	+HA	Salmonella spp	+	=			2,167	+	+MA	+MA	Salmonella spp	+	=
2004	"Piémontaise" salad with ham	MS3	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=									
2004	Dumplings from Lyon	MS3	no	-	-	-	-	/	-	0,013	-	/	/	/	-	=									
2004	Croque monsieur ham and turkey	MS3	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=									
2004	Breaded whiting fillet	MS3	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=									
2004	Roasted tuna/cod	MS3	no	-	-	-	-	/	-	0,009	-	/	/	/	-	=									
2004	Breaded whiting fillet	MS3	no	-	-	-	-	/	-	0,003	-	/	/	/	-	=									
2004	Shellfish pot	MS3	no	-	-	-	-	/	-	0,005	-	/	/	/	-	=									
2004	Chopped tuna steak/tomatos	MS3	no	-	-	-	-	/	-	0,008	-	/	/	/	-	=									

Feed products

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison			
				RVS		MKTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result				
				XLD	Edel	XLD	Edel																					
E1	# Rape cattle cake	AF1	yes	-LE	-LE	-ME	-ME	/	-	0,030	-	/	/	/	-	=	0,026	-										
E2	# Soy cattle cake	AF1	yes	+LB	+LB	+MB	+MB	Salmonella spp	+	2,782	+	+LB	+LB	Salmonella spp	+	=			2,758	+	+HB	+MB	Salmonella spp	+	=			
E3	# Bio sunflower cattlecake	AF1	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	2,766	+	+HB	+HB	Salmonella spp	+	=			2,776	+	+HB	+HB	Salmonella spp	+	=			
E4	# Rape cattle cake	AF1	yes	+MB	+MB	+MB	+MB	Salmonella spp	+	2,797	+	+MB	+MB	Salmonella spp	+	=			2,817	+	+HB	+HB	Salmonella spp	+	=			
E5	# Sunflower cattlecake	AF1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,867	+	+MB	+MB	Salmonella spp	+	=			2,901	+	+MB	+MB	Salmonella spp	+	=			
E6	# Bio sunflower cattlecake	AF1	yes	+MB	+MB	+HB	+MB	Salmonella spp	+	1,978	+	+MB	+MB	Salmonella spp	+	=			2,203	+	+MB	+HB	Salmonella spp	+	=			
E7	# Sunflower cattlecake	AF1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,796	+	+MB	+MB	Salmonella spp	+	=			1,784	+	+HB	+MB	Salmonella spp	+	=			
E8	# Sunflower cattlecake	AF1	yes	-ME	-ME	-ME	-ME	/	-	0,026	-	/	/	/	-	=	0,028	-										
E9	# Bio soy cattle cake	AF1	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,839	+	+MB	+MB	Salmonella spp	+	=			1,957	+	+HB	+HB	Salmonella spp	+	=			
E10	# Rape cattle cake	AF1	no	-ME	-ME	-HE	-HE	/	-	0,027	-	/	/	/	-	=	0,035	-										
E11	# Soy cattle cake	AF1	no	-ME	-ME	-ME	-ME	/	-	0,046	-	/	/	/	-	=	0,050	-										
E12	# Bio sunflower cattlecake	AF1	no	-ME	-ME	-HE	-HE	/	-	0,032	-	/	/	/	-	=	0,033	-										
E13	# Rape cattle cake	AF1	no	-LE	-ME	-ME	-ME	/	-	0,067	-	/	/	/	-	=	0,045	-										
E14	# Sunflower cattlecake	AF1	no	-HE	-HE	-HE	-HE	/	-	0,034	-	/	/	/	-	=	0,030	-										
E15	# Bio sunflower cattlecake	AF1	no	-HE	-HE	-HE	-HE	/	-	0,032	-	/	/	/	-	=	0,033	-										
Q12	# Cattle cake	AF1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,338	+	+MA	+MA	Salmonella spp	+	=			1,441	+	+MA	+MA	Salmonella spp	+	=			
Q13	# Cattle cake	AF1	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	2,040	+	+MA	+HA	Salmonella spp	+	=			2,097	+	+MA	+LA	Salmonella spp	+	=			
Q14	# Cattle cake	AF1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,181	+	+MA	+MA	Salmonella spp	+	=			1,492	+	+MA	+MA	Salmonella spp	+	=			
E16	# Flour for animals	AF2	no	Ø	Ø	Ø	Ø	/	-	0,023	-	/	/	/	-	=	0,022	-										
E17	# Extruded food for fish	AF2	no	Ø	Ø	Ø	Ø	/	-	0,043	-	/	/	/	-	=	0,023	-										
E18	# Soya granules	AF2	no	Ø	Ø	Ø	Ø	/	-	0,027	-	/	/	/	-	=	0,029	-										
E19	# Dry milk for animals	AF2	no	-HE	-ME	-ME	-ME	/	-	0,033	-	/	/	/	-	=	0,029	-										
E20	# Biscuit	AF2	no	-LE	-LE	-ME	-HE	/	-	0,030	-	/	/	/	-	=	0,023	-										
E21	# Extruded food	AF2	no	-HE	-HE	-HE	-HE	/	-	0,054	-	/	/	/	-	=	0,052	-										
F1	# Flour for animals	AF2	yes	Ø	Ø	Ø	Ø	/	-	0,021	-	/	/	/	-	=												
F2	# Extruded food for fish	AF2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	1,741	+	+HA	+HA	Salmonella spp	+	=			1,863	+	+MA	+MA	Salmonella spp	+	=			
F3	# Soya granules	AF2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,146	+	+HA	+HA	Salmonella spp	+	=			2,196	+	+MA	+MA	Salmonella spp	+	=			
F4	# Flour	AF2	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	1,786	+	+HB	+HB	Salmonella spp	+	=			1,889	+	+MB	+MB	Salmonella spp	+	=			
F5	# Derivative product	AF2	yes	+MB	+HB	+HB	+HB	Salmonella spp	+	2,103	+	+MB	+HB	Salmonella spp	+	=			2,124	+	+MB	+MB	Salmonella spp	+	=			
F6	# Extruded food	AF2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,248	+	+HA	+HA	Salmonella spp	+	=			2,455	+	+MB	+MB	Salmonella spp	+	=			
F7	# Tuna meal	AF2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	1,820	+	+HA	+HA	Salmonella spp	+	=			2,107	+	+MA	+MA	Salmonella spp	+	=			
F8	# Tuna meal	AF2	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,237	+	+HA	+HA	Salmonella spp	+	=			2,212	+	+MA	+MA	Salmonella spp	+	=			
F9	# Bran	AF2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,997	+	+MA	+MA	Salmonella spp	+	=			2,074	+	+MA	+MA	Salmonella spp	+	=			
I5	# Dry cat food	AF2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,658	+	+MA	+MA	Salmonella spp	+	=			1,731	+	+HA	+HA	Salmonella spp	+	=			
I6	# Dry cat food	AF2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,575	+	+MA	+MA	Salmonella spp	+	=			1,765	+	+HA	+HA	Salmonella spp	+	=			
I7	# Dry dog food	AF2	yes	+HA	+MA	+HA	+HA	Salmonella spp	+	1,497	+	+HA	+MA	Salmonella spp	+	=			1,705	+	+MA	+MA	Salmonella spp	+	=			
I8	# Dry dog food	AF2	yes	+HA	+MA	+HA	+HA	Salmonella spp	+	1,538	+	+HA	+MA	Salmonella spp	+	=			1,675	+	+HA	+HA	Salmonella spp	+	=			
N1	# Meat meal	AF2	no	-ME	Ø	Ø	Ø	/	-	0,015	-	-ME	Ø	/	-	=	0,026	-										
N2	# Poultry dehydrated proteins	AF2	no	-HE	-HE	-HE	-HE	/	-	0,012	-	-HE	-HE	/	-	=	0,024	-										
N3	# Flour	AF2	no	+HB	+HB	+HB	+HB	Salmonella spp	+	0,730	+	+HB	+HB	Salmonella spp	+	=			0,709	+	+HA	+MA	Salmonella spp	+	=			
2004	Soybean from cooler	AF2	no	+	+	+	+	Salmonella spp	+	2,398	+	+	+	Salmonella spp	+	=												
2004	Soybean	AF2	no	+	+	+	+	Salmonella spp	+	2,567	+	+	+	Salmonella spp	+	=												
2004	Soybean from cooler	AF2	no	-	-	-	-	/	-	0,130	-	/	/	/	-	=												
2004	Soybean	AF2	no	-	-	-	-	/	-	0,023	-	/	/	/	-	=												
2004	Soybean from cooler	AF2	no	-	-	-	-	/	-	0,010	-	/	/	/	-	=												
2004	Soybean from cooler	AF2	no	-	-	-	-	/	-	0,019	-	/	/	/	-	=												
2004	Soybean Entry silo	AF2	no	-	-	-	-	/	-	0,036	-	/	/	/	-	=												
2004	Soybean from lift	AF2	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=												
2004	Product from Le Gouessant	AF2	no	-	-	-	-	/	-	0,024	-	/	/	/	-	=												
2004	Extruded soy	AF2	no	+	+	+	+	Salmonella spp	+	1,948	+	+	+	Salmonella spp	+	=												
2004	Extruded soy	AF2	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=												
2004	Extruded soy	AF2	no	-	-	-	-	/	-	0,010	-	/	/	/	-	=												
2004	Food for Barbarian ducks	AF2	no	-	-	-	-	/	-	0,012	-	/	/	/	-	=												
2004	Load from Le Gouessant	AF2	no	-	-	-	-	/	-	0,018	-	/	/	/	-	=												
2004	Concentrated product for animals	AF2	no	-	-	-	-	/	-	0,200	-	/	/	/	-	=												

**Feed products**

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison		
				RVS		MKTTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result			
				XLD	Edel	XLD	Edel																			OD	Test result
I14 #	Meat scraps	AF3	yes	-HE	-HE	-HE	-HE	/	-	0,032	-	-HE	-HE	/	-	=	0,033	-									
I15 #	Meat scraps	AF3	yes	-HE	-HE	-HE	-HE	/	-	0,437	+	+HE	+HE	/	-	=			0,624	+	+MD	-HE	Salmonella spp	+	PS		
RVS Streaking RVS after storage at 2-8°C																											
I16 #	Meat scraps	AF3	yes	-ME	-ME	-HE	-HE	/	-	0,026	-	-ME	-ME	/	-	=	0,028	-									
I17 #	Meat scraps	AF3	no	-ME	-ME	-HE	-HE	/	-	0,034	-	-ME	-ME	/	-	=	0,040	-									
I18 #	Meat scraps	AF3	no	-ME	-ME	-HE	-HE	/	-	0,030	-	-ME	-ME	/	-	=	0,041	-									
I19 #	Meat scraps	AF3	no	-HE	-ME	-HE	-HE	/	-	0,039	-	-HE	-ME	/	-	=	0,037	-									
I20 #	Meat scraps	AF3	no	-HE	-ME	-HE	-HE	/	-	0,038	-	-HE	-ME	/	-	=	0,039	-									
L24 #	Meat scraps	AF3	yes	+MB	+HB	+HB	+HB	Salmonella spp	+	1,681	+	+MB	+HB	Salmonella spp	+	=			1,317	+	+MB	+MB	Salmonella spp	+	=		
L25 #	Meat scraps	AF3	yes	+HB	+HB	+HB	+HA	Salmonella spp	+	1,766	+	+HB	+HB	Salmonella spp	+	=			1,304	+	+HB	+HB	Salmonella spp	+	=		
L26 #	Meat scraps	AF3	yes	+HB	+HA	+HB	+HA	Salmonella spp	+	1,877	+	+HB	+HA	Salmonella spp	+	=			1,348	+	+HB	+HB	Salmonella spp	+	=		
L27 #	Meat scraps	AF3	yes	+HB	+MA	+HB	+HB	Salmonella spp	+	1,833	+	+HB	+MA	Salmonella spp	+	=			1,453	+	+HB	+HB	Salmonella spp	+	=		
L28 #	Meat scraps	AF3	yes	+MB	+MA	+HB	+MA	Salmonella spp	+	1,879	+	+MB	+MA	Salmonella spp	+	=			1,526	+	+MB	+MB	Salmonella spp	+	=		
L29 #	Meat scraps	AF3	no	-ME	-LE	-HE	Ø	/	-	0,085	-	-ME	-LE	/	-	=	0,039	-									
L30 #	Meat scraps	AF3	no	-ME	-LE	-HE	-HE	/	-	0,102	-	-ME	-LE	/	-	=	0,041	-									
M11 #	Meat scraps	AF3	yes	+MB	+HB	+HB	+HB	Salmonella spp	+	2,414	+	+MB	+HB	Salmonella spp	+	=			2,360	+	+MB	+MB	Salmonella spp	+	=		
M12 #	Meat scraps	AF3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,314	+	+MB	+MB	Salmonella spp	+	=			2,397	+	+MB	+MB	Salmonella spp	+	=		
M13 #	Meat scraps	AF3	yes	+HB	+HB	+HB	+HB	Salmonella spp	+	2,566	+	+HB	+HB	Salmonella spp	+	=			2,418	+	+HB	+MB	Salmonella spp	+	=		
Q1 #	Meat scraps	AF3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,953	+	+MB	+MB	Salmonella spp	+	=			2,086	+	+MB	+MB	Salmonella spp	+	=		
Q2 #	Meat scraps	AF3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,380	+	+MB	+MB	Salmonella spp	+	=			2,430	+	+MB	+MB	Salmonella spp	+	=		
Q3 #	Meat scraps	AF3	yes	+LB	+MB	+HB	+HB	Salmonella spp	+	2,210	+	+LB	+MB	Salmonella spp	+	=			2,360	+	+MB	+MB	Salmonella spp	+	=		
Q4 #	Meat scraps	AF3	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	2,121	+	+MB	+MB	Salmonella spp	+	=			2,249	+	+MB	+MB	Salmonella spp	+	=		

Code sample	Product	Cat.	Artif.C	Reference method NF EN ISO 6579						Alternative method RayAI OPTIMA Salmonella						Compaaison	OPTIMA 30min		OPTIMA 72h +4°C						Comparison	
				RVS		MKTn		Identification	Result	OD	Test result	XLD	Edel	Identification	Final result		OD	Test result	OD	Result	XLD	Edel	Identification	Final result		
				XLD	Edel	XLD	Edel																			
D1	# Stagnant water	EN1	yes	Ø	Ø	Ø	Ø	/	-	0,026	-	/	/	/	-	=	0,067	-								
D2	# Stagnant water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,591	+	+MA	+MA	Salmonella spp	+	=	3,190	+	2,706	+	+MA	+MA	Salmonella spp	+	=	
D3	# Ice water	EN1	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,467	+	+HA	+HA	Salmonella spp	+	=	3,315	+	2,670	+	+HA	+HA	Salmonella spp	+	=	
D4	# Stagnant water	EN1	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,532	+	+HA	+HA	Salmonella spp	+	=	3,216	+	2,760	+	+HA	+HA	Salmonella spp	+	=	
D5	# Process water	EN1	yes	+MA	+HA	+HA	+HA	Salmonella spp	+	1,900	+	+MA	+HA	Salmonella spp	+	=	2,599	+	2,074	+	+MA	+HA	Salmonella spp	+	=	
D6	# Process water	EN1	yes	Ø	Ø	Ø	Ø	/	-	0,024	-	/	/	/	-	=	0,023	-								
D7	# Process water	EN1	yes	Ø	Ø	Ø	Ø	/	-	0,021	-	/	/	/	-	=	0,020	-								
D8	# Process water	EN1	yes	Ø	Ø	Ø	Ø	/	-	0,061	-	/	/	/	-	=	0,022	-								
D9	# Process water	EN1	yes	Ø	Ø	Ø	Ø	/	-	0,029	-	/	/	/	-	=	0,023	-								
D10	# Process water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,024	-	/	/	/	-	=	0,023	-								
D11	# Stagnant water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,023	-	/	/	/	-	=	0,025	-								
D12	# Stagnant water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,021	-	/	/	/	-	=	0,030	-								
D13	# Ice water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,055	-	/	/	/	-	=	0,024	-								
D14	# Process water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,020	-	/	/	/	-	=	0,022	-								
D15	# Process water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,038	-	/	/	/	-	=	0,021	-								
K4	# Ice water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,948	+	+MA	+MA	Salmonella spp	+	=			2,966	+	+MA	+MA	Salmonella spp	+	=	
K5	# Ice water	EN1	yes	+HA	+MA	+HA	+HA	Salmonella spp	+	3,099	+	+HA	+MA	Salmonella spp	+	=			2,934	+	+MA	+MA	Salmonella spp	+	=	
K6	# Process water	EN1	yes	+HA	+HA	+HA	+HA	Salmonella spp	+	2,909	+	+HA	+HA	Salmonella spp	+	=			2,215	+	+MB	+MB	Salmonella spp	+	=	
J1	# Process water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,035	-	Ø	Ø	/	-	=	0,047	-								
J2	# Process water	EN1	no	Ø	Ø	Ø	Ø	/	-	0,033	-	Ø	Ø	/	-	=	0,032	-								
L18	# Water washing vegetables	EN1	no	-ME	-ME	-HE	-HE	/	-	0,039	-	-ME	-ME	/	-	=	0,058	-								
Q5	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,323	+	+MA	+MA	Salmonella spp	+	=			2,220	+	+MA	+MA	Salmonella spp	+	=	
Q6	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,666	+	+MA	+MA	Salmonella spp	+	=			2,230	+	+MA	+MA	Salmonella spp	+	=	
Q7	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,763	+	+MA	+MA	Salmonella spp	+	=			1,913	+	+MA	+MA	Salmonella spp	+	=	
Q8	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,789	+	+MA	+MA	Salmonella spp	+	=			2,050	+	+MA	+MA	Salmonella spp	+	=	
Q9	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,893	+	+MA	+MA	Salmonella spp	+	=			2,206	+	+MA	+MA	Salmonella spp	+	=	
Q10	# Process water	EN1	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,989	+	+MA	+MA	Salmonella spp	+	=			1,892	+	+MA	+LA	Salmonella spp	+	=	
Q11	# Process water	EN1	yes	+LA	+MA	+HA	+HA	Salmonella spp	+	1,898	+	+LA	+MA	Salmonella spp	+	=			2,014	+	+MA	+MA	Salmonella spp	+	=	
J6	# Blood on surface Poultry cutting table	EN2	no	+MB	+MB	+HB	+HB	Salmonella spp	+	2,302	+	+MB	+MB	Salmonella spp	+	=			2,018	+	+MB	+MB	Salmonella spp	+	=	
J14	# Surface cutting table	EN2	no	-HE	-ME	-ME	-LE	/	-	0,029	-	-HE	-ME	/	-	=	0,069	-								
J15	# Stainless steel table surface	EN2	no	-ME	Ø	-ME	Ø	/	-	0,026	-	-ME	Ø	/	-	=	0,037	-								
J16	# Surface of weighing workstation	EN2	no	-LE	Ø	Ø	Ø	/	-	0,023	-	-LE	Ø	/	-	=	0,028	-								
J17	# Surface cheese production booth	EN2	no	+HB	+MA	+HB	+HB	Salmonella spp	+	1,067	+	+HB	+MA	Salmonella spp	+	=			1,527	+	+HB	+HB	Salmonella spp	+	=	
K7	# Stainless steel table surface	EN2	no	+HB	+HC	+HB	+HC	Salmonella spp	+	1,417	+	+HB	+HC	Salmonella spp	+	=			2,215	+	+MB	+MB	Salmonella spp	+	=	
K8	# Cutting table surface	EN2	no	+MB	+HC	+HB	+HC	Salmonella spp	+	1,793	+	+MB	+HC	Salmonella spp	+	=			2,185	+	+MB	+MB	Salmonella spp	+	=	
K9	# Surface Delicatessen retail outlet	EN2	yes	+MB	+MB	+HB	+HB	Salmonella spp	+	1,965	+	+MB	+MB	Salmonella spp	+	=			1,525	+	+MB	+MB	Salmonella spp	+	=	
K11	# Surface Poultry cutting table	EN2	yes	+MB	+MB	+HB	+HD	Salmonella spp	+	2,210	+	+MB	+MB	Salmonella spp	+	=			1,567	+	+MB	+MB	Salmonella spp	+	=	
K12	# Surface Fish cutting table	EN2	yes	+MB	+HB	+HB	+HC	Salmonella spp	+	2,133	+	+MB	+HB	Salmonella spp	+	=			1,530	+	+MB	+MB	Salmonella spp	+	=	
K13	# Surface workshop	EN2	yes	+MC	+MD	+HD	+HD	Salmonella spp	+	0,955	+	+MC	+MD	Salmonella spp	+	=			0,868	+	+MB	+MC	Salmonella spp	+	=	
K14	# Surface retail outlet	EN2	no	-ME	-LE	-HE	-LE	/	-	0,020	-	-ME	-LE	/	-	=	0,055	-								
K15	# Surface retail outlet	EN2	no	-HE	-LE	-HE	-LE	/	-	0,015	-	-HE	-LE	/	-	=	0,034	-								
K16	# Surface carriage	EN2	no	-HE	-ME	-HE	-HE	/	-	0,018	-	-HE	-ME	/	-	=	0,042	-								
K17	# Surface weighing hood	EN2	no	Ø	Ø	Ø	Ø	/	-	0,007	-	Ø	Ø	/	-	=	0,019	-								
K19	# Surface Fish cutting table	EN2	no	-ME	-LE	-HE	-HE	/	-	0,019	-	-ME	-LE	/	-	=	0,019	-								
L16	# Surface Poultry cutting table	EN2	no	-ME	-ME	-HE	-HE	/	-	0,034	-	-ME	-ME	/	-	=	0,058	-								
M19	# Surface drying room	EN2	no	-LE	Ø	Ø	Ø	/	-	0,007	-	-LE	Ø	/	-	=	0,006	-								
M20	# Surface drying room	EN2	no	Ø	Ø	Ø	Ø	/	-	0,012	-	Ø	Ø	/	-	=	0,008	-								
Q15	# Surface door handle	EN2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,997	+	+MA	+MA	Salmonella spp	+	=			1,947	+	+MA	+MA	Salmonella spp	+	=	
Q16	# Surface table	EN2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	1,945	+	+MA	+MA	Salmonella spp	+	=			2,177	+	+MA	+MA	Salmonella spp	+	=	
Q17	# Surface table	EN2	yes	+MA	+MA	+HA	+HA	Salmonella spp	+	2,148	+	+MA	+MA	Salmonella spp	+	=			2,280	+	+MA	+HA	Salmonella spp	+	=	
J8	# Pork bones sawdust	EN3	no	-ME	-LE	-HE	-HE	/	-	0,024	-	-ME	-LE	/	-	=	0,184	-								
J9	# Pork bones sawdust	EN3	no	-HE	-LE	-HE	-ME	/	-	0,046	-	-HE	-LE	/	-	=	0,025	-								
K10	# Scraps washing vegetables	EN3	yes	+MB	+MD	+HC	-HE	Salmonella spp	+	2,049	+	+MB	+MD	Salmonella spp	+	=			1,237	+	+MB	+MC	Salmonella spp	+	=	
K18	# Scraps washing vegetables	EN3	no	+MB	+MB	+HC	+HC	Salmonella spp	+	2,106	+	+MB	+MB	Salmonella spp	+	=			1,790	+	+HB	+HC	Salmonella spp	+	=	
L17	# Vegetables scraps	EN3	no	-ME	-ME	-HE	-HE	/	-	0,042	-	-ME	-ME	/	-	=	0,094	-								
M14	# Scraps	EN3	no	-ME	-ME	-HE	-HE	/	-	0,007	-	-ME	-ME	/	-	=	0,117	-								
M15	# Scraps	EN3	no	-ME	-ME	-HE	-HE	/	-	0,013	-	-ME	-ME	/	-	=	0,142	-								
M16	# Scraps	EN3	no	-ME	-ME	-HE	-HE	/	-	0,009	-	-ME	-ME	/	-	=	0,026	-								
M17	# Scraps	EN3	no	Ø	Ø	Ø	Ø	/	-	0,029	-	Ø	Ø	/	-	=	0,008	-								
M18	# Scraps	EN3	no	Ø	Ø	Ø	Ø	/	-	0,007	-	Ø	Ø	/	-	=	0,002	-								
O1	# Scraps	EN3	no	+MA	+MA	+HA	+HA	Salmonella spp	+	0,756	+	+MA	+MA	Salmonella spp	+	=			0,834	+	+MA	+MA	Salmonella spp	+	=	
O2	# Scraps	EN3	no	+MA	+MA	+HA	+HA	Salmonella spp	+	0,716	+	+MA	+HA	Salmonella spp	+	=			0,811	+	+MA	+MA	Salmonella spp	+	=	
O3	# Scraps	EN3	no	+MC	+HC	+HB	+HC	Salmonella spp	+	1,161	+	+MC	+HC	Salmonella spp	+	=			1,647	+	+HC	+HC	Salmonella spp	+	=	
Q18	# Scraps	EN3	no	+MC	+MB	+HB	+HB	Salmonella spp	+	0,608	+	+MC	+MB	Salmonella spp	+	=			0,963	+	+MC	+LB	Salmonella spp	+	=	

APPENDIX D :  
INCLUSIVITY / EXCLUSIVITY

	Strain	Origin	Alternative method <i>Salmonella</i> OPTIMA			
			ELISA test from BPW		ELISA test from RVS broth	
			OD	Result	OD	Result
1	<i>Salmonella</i> Agona	Feed product	2.511	+	1.124	+
2	<i>Salmonella</i> Anatum	Dairy plant	2.251	+	1.479	+
3	<i>Salmonella</i> Anatum	Dairy product	2.540	+	1.495	+
4	<i>Salmonella arizonae</i> (lactose +)	Collection	1.430	+	0.269	+
5	<i>Salmonella arizonae</i> (lactose +)	Collection	2.343	+	0.213	+
6	<i>Salmonella</i> Berta	Environment Feed products	2.661	+	2.507	+
7	<i>Salmonella</i> Braenderup	Dairy plant	3.152	+	1.929	+
8	<i>Salmonella</i> Tennessee	Eggproduct	3.281	+	1.835	+
9	<i>Salmonella</i> Brandenburg	Dairy product	3.096	+	1.920	+
10	<i>Salmonella</i> Bredeney	Vegetables	2.825	+	2.007	+
11	<i>Salmonella</i> Cerro	Environment Feed products	1.659	+	0.640	+
12	<i>Salmonella</i> Cerro	Feed product	1.636	+	0.684	+
13	<i>Salmonella</i> Derby	Human origin	2.225	+	1.987	+
14	<i>Salmonella</i> Dublin	Dairy product	3.553	+	2.556	+
15	<i>Salmonella</i> Dublin	Dairy product	3.489	+	2.600	+
16	<i>Salmonella</i> Ealing	Collection	3.689	+	1.514	+
17	<i>Salmonella</i> Enteritidis	Vegetables	3.459	+	2.985	+
18	<i>Salmonella</i> Yoruba	Feed product	2.364	+	1.345	+
19	<i>Salmonella</i> Enteritidis	Collection	4.020	+	3.133	+
20	<i>Salmonella</i> Gaminara	Feed product	2.645	+	1.196	+
21	<i>Salmonella</i> Give	Dairy plant	2.566	+	1.240	+
22	<i>Salmonella</i> Hadar	Human food	2.529	+	2.060	+
23	<i>Salmonella</i> Heidelberg	Human origin	2.669	+	1.988	+
24	<i>Salmonella</i> Indiana	Human food	2.714	+	2.103	+
25	<i>Salmonella</i> Infantis	Dairy product	2.658	+	1.674	+
26	<i>Salmonella</i> Kottbus	Human food	2.352	+	2.080	+
27	<i>Salmonella</i> Lexington	Feed product	2.310	+	1.397	+
28	<i>Salmonella</i> Mbandaka	Feed product	3.170	+	2.055	+
29	<i>Salmonella</i> Minnesota	Mussels	2.544	+	2.262	+
30	<i>Salmonella</i> Montevideo	Feed product	1.892	+	0.916	+
31	<i>Salmonella</i> Napoli	Collection	2.502	+	1.042	+
32	<i>Salmonella</i> Newport	Human origin	2.643	+	1.515	+
33	<i>Salmonella</i> Oslo	Collection	3.849	+	3.455	+
34	<i>Salmonella</i> Paratyphi A	Collection	2.614	+	0.494	+
35	<i>Salmonella</i> Paratyphi B	Collection	2.375	+	0.807	+
36	<i>Salmonella</i> Paratyphi C	Collection	1.966	+	0.131	-
	after culture on MSRV		2.604	+	2.322	+
37	<i>Salmonella</i> Rissen	Vegetables	2.356	+	1.507	+
38	<i>Salmonella</i> Sandiego	Feed product	3.191	+	2.037	+
39	<i>Salmonella</i> Senftenberg	Dairy plant	1.242	+	0.922	+
40	<i>Salmonella</i> Senftenberg	Feed product	1.743	+	1.287	+
41	<i>Salmonella</i> Typhi Typhi	Collection	1.425	+	1.688	+
42	<i>Salmonella</i> Typhimurium	Pet food	2.481	+	0.494	+
43	<i>Salmonella</i> Typhimurium	Pet food	2.788	+	0.179	-
	after culture on MSRV		3.696	+	1.946	+
44	<i>Salmonella</i> Typhimurium	Collection	0.402	+	0.397	+
45	<i>Salmonella</i> Typhimurium	Meat product	2.770	+	1.884	+
46	<i>Salmonella</i> Typhimurium	Collection	2.687	+	2.451	+
47	<i>Salmonella</i> Typhimurium	Collection	2.360	+	0.416	+
48	<i>Salmonella</i> Virchow	Human origin	2.989	+	2.156	+
49	<i>Salmonella</i> I 1,3,19:z27	Feed product	1.659	+	0.800	+
50	<i>Salmonella</i> I 6,7:-:- (non motile)	Environment Feed products	0.795	+	0.897	+
51	<i>Salmonella</i> Typhimurium	Pork meat	3.085	+	2.744	+
52	<i>Salmonella</i> Typhimurium	Poultry	3.090	+	0.971	+
53	<i>Salmonella</i> Typhimurium	Feed product	3.664	+	2.783	+
54	<i>Salmonella</i> Typhimurium	Chicken meat	3.536	+	2.476	+
55	<i>Salmonella</i> Typhimurium	Sheep meat	3.580	+	1.506	+

	Strain	Origin	Alternative method <i>Salmonella</i> OPTIMA			
			ELISA test from BPW		ELISA test from RVS broth	
			OD	Result	OD	Result
1	<i>Bacillus cereus</i>	Collection	0.011	-	0.010	-
2	<i>Citrobacter diversus</i>	Collection	0.221	+	0.041	-
3	<i>Citrobacter freundii</i>	Feed product	0.469	+	0.028	-
4	<i>Citrobacter freundii</i>	Milk powder	0.881	+	0.034	-
5	<i>Citrobacter freundii</i>	Eggproduct	2.442	+	0.114	-
6	<i>Citrobacter freundii</i>	Eggproduct	0.561	+	0.034	-
7	<i>Citrobacter youngae</i>	Vegetables	1.747	+	0.019	-
8	<i>Enterobacter agglomerans</i>	Collection	0.043	-	0.016	-
9	<i>Enterobacter cloacae</i>	Chocolate	0.093	-	0.029	-
10	<i>Enterobacter cloacae</i>	Collection	0.097	-	0.020	-
11	<i>Enterobacter cloacae</i>	Chocolate	0.117	-	0.024	-
12	<i>Enterobacter cloacae</i>	Dairy product	0.185	-	0.016	-
13	<i>Enterobacter cloacae</i>	Dairy product	0.140	-	0.025	-
14	<i>Enterobacter sakazakii</i>	Chocolate	0.211	+	0.015	-
15	<i>Escherichia coli</i>	Dairy product	0.419	+	0.042	-
16	<i>Escherichia coli</i>	Dairy product	0.127	-	0.019	-
17	<i>Escherichia coli</i>	Collection	0.624	+	0.064	-
18	<i>Escherichia coli</i>	Eggproduct	0.149	-	0.010	-
19	<i>Escherichia coli</i> O157:H7	Collection	0.124	-	0.016	-
20	<i>Hafnia alvei</i>	Dairy product	0.025	-	0.002	-
21	<i>Hafnia alvei</i>	Dairy product	0.035	-	0.001	-
22	<i>Hafnia alvei</i>	Dairy product	0.257	+	0.005	-
23	<i>Klebsiella oxytoca</i>	Collection	0.040	-	0.053	-
24	<i>Klebsiella pneumoniae</i>	Collection	0.040	-	0.026	-
25	<i>Proteus mirabilis</i>	Collection	0.095	-	0.023	-
26	<i>Proteus mirabilis</i>	Eggproduct	0.034	-	0.008	-
27	<i>Providencia rettgeri</i>	Dairy product	0.033	-	0.014	-
28	<i>Pseudomonas aeruginosa</i>	Collection	0.025	-	0.011	-
29	<i>Shigella sonnei</i>	Collection	0.025	-	0.006	-
30	<i>Yersinia enterocolitica</i>	Vegetables	0.027	-	0.002	-

APPENDIX E :  
INTERLABORATORY STUDY  
-  
LIST AND DETAILED RESULTS OF  
PARTICIPANT LABORATORIES

## List of participating laboratories

Lab	Contact	mail address
Food Analytical Laboratories Ltd	Andrea Myatt	Stoke-on-Trent - UK
ALcontrol Laboratories (Spalding)	Rachel Ardron	Spalding - UK
Eurofins Cervac Ouest	Christophe Abaux	35230 Noyal-Chatillion/Seiche - France
ALcontrol Laboratories (Newton Abbot)	Steve Macfarlane	Heathfield, Newton Abbot - UK
Opinion Test & Taste	Lia Driedonks	Hertogenbosch - The Netherlands
Eclipse Scientific Group (Chatteris)	Yvonne Wood	Chatteris - UK
Express Microbiology	Jennifer Newton	Linlithgow - UK
Eurofins Scientific	Lyn Richards	Birkenhead - UK
Kerry Ingredients	Kim Kirby	Bristol - UK
Northern Hygiene Laboratories	Sally Palmer	Driffield - UK
Bodycote Allied	Jayne Wallace	Grimsby - UK
Bodycote Norpath	Mick Wood	Seaham - UK
Rowan Food	Dave Jones	Wrexham - UK
SMS Ltd.	Dr David Gray	Oldmeldrum - UK
Eurofins Scientific	Paula Catchpole - Martin Lewis	London - UK

**Lab A**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	1.519	+	+	+	=
2	+	+	+	+	+	=	1.861	+	+	+	=
3	-	-	-	-	-	=	0.017	-	-	-	=
4	-	-	-	-	-	=	0.009	-	-	-	=
5	+	+	+	+	+	=	1.435	+	+	+	=
6	+	+	+	+	+	=	1.929	+	+	+	=
7	+	+	+	+	+	=	2.262	+	+	+	=
8	+	+	+	+	+	=	2.066	+	+	+	=
9	-	-	-	-	-	=	0.002	-	-	-	=
10	-	-	-	-	-	=	0.003	-	-	-	=
11	+	+	+	+	+	=	1.329	+	+	+	=
12	+	+	+	+	+	=	2.369	+	+	+	=
13	+	+	+	+	+	=	1.855	+	+	+	=
14	+	+	+	+	+	=	1.938	+	+	+	=
15	-	-	-	-	-	=	-0.005	-	-	-	=
16	-	-	-	-	-	=	-0.002	-	-	-	=
17	-	-	-	-	-	=	-0.005	-	-	-	=
18	-	-	-	-	-	=	-0.004	-	-	-	=
19	+	+	+	+	+	=	0.993	-	-	+	=
20	+	+	+	+	+	=	1.357	+	+	+	=
21	+	+	+	+	+	=	2.044	+	+	+	=
22	+	+	+	+	+	=	2.095	+	+	+	=
23	+	+	+	+	+	=	2.184	+	+	+	=
24	+	+	+	+	+	=	2.150	+	+	+	=
Total flora of milk (UFC/ml):			90								

**Lab B**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.636	+	+	+	=
2	+	+	+	+	+	=	2.843	+	+	+	=
3	-	-	-	-	-	=	0.016	-	-	-	=
4	-	-	-	-	-	=	0.016	-	-	-	=
5	+	+	+	+	+	=	2.740	+	+	+	=
6	+	+	+	+	+	=	0.941	+	+	+	=
7	+	+	+	+	+	=	2.706	+	+	+	=
8	+	+	+	+	+	=	2.794	+	+	+	=
9	-	-	-	-	-	=	0.016	-	-	-	=
10	-	-	-	-	-	=	0.016	-	-	-	=
11	+	+	+	+	+	=	2.788	+	+	+	=
12	+	+	+	+	+	=	3.114	+	+	+	=
13	+	+	+	+	+	=	3.244	+	+	+	=
14	+	+	+	+	+	=	2.869	+	+	+	=
15	-	-	-	-	-	=	0.016	-	-	-	=
16	-	-	-	-	-	=	0.016	-	-	-	=
17	-	-	-	-	-	=	0.017	-	-	-	=
18	-	-	-	-	-	=	0.014	-	-	-	=
19	+	+	+	+	+	=	2.694	+	+	+	=
20	+	+	+	+	+	=	2.560	+	+	+	=
21	+	+	+	+	+	=	2.908	+	+	+	=
22	+	+	+	+	+	=	2.909	+	+	+	=
23	+	+	+	+	+	=	2.914	+	+	+	=
24	+	+	+	+	+	=	2.848	+	+	+	=
Total flora of milk (UFC/ml):			180								

**Lab C**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.574	+	+	+	=
2	+	+	+	+	+	=	2.499	+	+	+	=
3	-	-	-	-	-	=	0.046	-	-	-	=
4	-	-	-	-	-	=	0.055	-	-	-	=
5	+	+	+	+	+	=	2.464	+	+	+	=
6	+	+	+	+	+	=	2.500	+	+	+	=
7	+	+	+	+	+	=	2.543	+	+	+	=
8	+	+	+	+	+	=	2.644	+	+	+	=
9	-	-	-	-	-	=	0.047	-	-	-	=
10	-	-	-	-	-	=	0.050	-	-	-	=
11	+	+	+	+	+	=	2.654	+	+	+	=
12	+	+	+	+	+	=	2.415	+	+	+	=
13	+	+	+	+	+	=	2.704	+	+	+	=
14	+	+	+	+	+	=	2.918	+	+	+	=
15	-	-	-	-	-	=	0.055	-	-	-	=
16	-	-	-	-	-	=	0.035	-	-	-	=
17	-	-	-	-	-	=	0.054	-	-	-	=
18	-	-	-	-	-	=	0.050	-	-	-	=
19	+	+	+	+	+	=	2.657	+	+	+	=
20	+	+	+	+	+	=	2.643	+	+	+	=
21	+	+	+	+	+	=	2.827	+	+	+	=
22	+	+	+	+	+	=	2.379	+	+	+	=
23	+	+	+	+	+	=	2.365	+	+	+	=
24	+	+	+	+	+	=	2.313	+	+	+	=
Total flora of milk (UFC/ml):			<1								

## Lab D

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.828	+	+	+	=
2	+	+	+	+	+	=	2.705	+	+	+	=
3	-	-	-	-	-	=	0.001	-	-	-	=
4	-	-	-	-	-	=	0.002	-	-	-	=
5	+	+	+	+	+	=	2.709	+	+	+	=
6	+	+	+	+	+	=	2.741	+	+	+	=
7	+	+	+	+	+	=	2.792	+	+	+	=
8	+	+	+	+	+	=	2.712	+	+	+	=
9	-	-	-	-	-	=	0,000	-	-	-	=
10	-	-	-	-	-	=	0.004	-	-	-	=
11	+	+	+	+	+	=	2.569	+	+	+	=
12	+	+	+	+	+	=	2.579	+	+	+	=
13	+	+	+	+	+	=	2.660	+	+	+	=
14	+	+	+	+	+	=	2.665	+	+	+	=
15	-	-	-	-	-	=	0.001	-	-	-	=
16	-	-	-	-	-	=	0.090	-	-	-	=
17	-	-	-	-	-	=	0.058	-	-	-	=
18	-	-	-	-	-	=	0.001	-	-	-	=
19	+	+	+	+	+	=	2.593	+	+	+	=
20	+	+	+	+	+	=	2.660	+	+	+	=
21	+	+	+	+	+	=	2.616	+	+	+	=
22	+	+	+	+	+	=	2.579	+	+	+	=
23	+	+	+	+	+	=	2.552	+	+	+	=
24	+	+	+	+	+	=	2.569	+	+	+	=
Total flora of milk (UFC/ml):					160						

## Lab E

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.153	+	+	+	=
2	+	+	+	+	+	=	2.191	+	+	+	=
3	-	-	-	-	-	=	0.025	-	-	-	=
4	-	-	-	-	-	=	0.018	-	-	-	=
5	+	+	+	+	+	=	2.062	+	+	+	=
6	+	+	+	+	+	=	2.192	+	+	+	=
7	+	+	+	+	+	=	2.067	+	+	+	=
8	+	+	+	+	+	=	2.106	+	+	+	=
9	-	-	-	-	-	=	0.027	-	-	-	=
10	-	-	-	-	-	=	0.027	-	-	-	=
11	+	+	+	+	+	=	2.277	+	+	+	=
12	+	+	+	+	+	=	2.068	+	+	+	=
13	+	+	+	+	+	=	2.079	+	+	+	=
14	+	+	+	+	+	=	2.170	+	+	+	=
15	-	-	-	-	-	=	0.026	-	-	-	=
16	-	-	-	-	-	=	0.026	-	-	-	=
17	-	-	-	-	-	=	0.028	-	-	-	=
18	-	-	-	-	-	=	0.025	-	-	-	=
19	+	+	+	+	+	=	2.074	+	+	+	=
20	+	+	+	+	+	=	2.117	+	+	+	=
21	+	+	+	+	+	=	2.149	+	+	+	=
22	+	+	+	+	+	=	2.156	+	+	+	=
23	+	+	+	+	+	=	2.171	+	+	+	=
24	+	+	+	+	+	=	2.219	+	+	+	=
Total flora of milk (UFC/ml):					210						

## Lab G

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	1.550	+	+	+	=
2	+	+	+	+	+	=	2.140	+	+	+	=
3	-	-	-	-	-	=	0.007	-	-	-	=
4	-	-	-	-	-	=	0.020	-	-	-	=
5	+	+	+	+	+	=	1.810	+	+	+	=
6	+	+	+	+	+	=	1.770	+	+	+	=
7	+	+	+	+	+	=	1.690	+	+	+	=
8	+	+	+	+	+	=	1.930	+	+	+	=
9	-	-	-	-	-	=	0.007	-	-	-	=
10	-	-	-	-	-	=	0.005	-	-	-	=
11	+	+	+	+	+	=	1.830	+	+	+	=
12	+	+	+	+	+	=	1.940	+	+	+	=
13	+	+	+	+	+	=	1.840	+	+	+	=
14	+	+	+	+	+	=	2.020	+	+	+	=
15	-	-	-	-	-	=	0.017	-	-	-	=
16	-	-	-	-	-	=	0.016	-	-	-	=
17	-	-	-	-	-	=	0.013	-	-	-	=
18	-	-	-	-	-	=	0.018	-	-	-	=
19	+	+	+	+	+	=	2.021	+	+	+	=
20	+	+	+	+	+	=	2.110	+	+	+	=
21	+	+	+	+	+	=	1.750	+	+	+	=
22	+	+	+	+	+	=	1.930	+	+	+	=
23	+	+	+	+	+	=	2.020	+	+	+	=
24	+	+	+	+	+	=	2.320	+	+	+	=
Total flora of milk (UFC/ml):					7						

## Lab H

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	>0.200	+	+	+	=
2	+	+	+	+	+	=	>0.200	+	+	+	=
3	-	-	-	-	-	=	0.019	-	-	-	=
4	-	-	-	-	-	=	0.017	-	-	-	=
5	+	+	+	+	+	=	>0.200	+	+	+	=
6	+	+	+	+	+	=	>0.200	+	+	+	=
7	+	+	+	+	+	=	>0.200	+	+	+	=
8	+	+	+	+	+	=	>0.200	+	+	+	=
9	-	-	-	-	-	=	0.063	-	-	-	=
10	-	-	-	-	-	=	0.019	-	-	-	=
11	+	+	+	+	+	=	>0.200	+	+	+	=
12	+	+	+	+	+	=	>0.200	+	+	+	=
13	+	+	+	+	+	=	>0.200	+	+	+	=
14	+	+	+	+	+	=	>0.200	+	+	+	=
15	-	-	-	-	-	=	0.018	-	-	-	=
16	-	-	-	-	-	=	0.015	-	-	-	=
17	-	-	-	-	-	=	0.015	-	-	-	=
18	-	-	-	-	-	=	0.012	-	-	-	=
19	+	+	+	+	+	=	>0.200	+	+	+	=
20	+	+	+	+	+	=	>0.200	+	+	+	=
21	+	+	+	+	+	=	>0.200	+	+	+	=
22	+	+	+	+	+	=	>0.200	+	+	+	=
23	+	+	+	+	+	=	2.982	+	+	+	=
24	+	+	+	+	+	=	2.884	+	+	+	=
Total flora of milk (UFC/ml):					NC						

## Lab I

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.785	+	+	+	=
2	+	+	+	+	+	=	2.748	+	+	+	=
3	-	-	-	-	-	=	0.018	-	-	-	=
4	-	-	-	-	-	=	0.016	-	-	-	=
5	+	+	+	+	+	=	2.903	+	+	+	=
6	+	+	+	+	+	=	2.862	+	+	+	=
7	+	+	+	+	+	=	2.611	+	+	+	=
8	+	+	+	+	+	=	2.812	+	+	+	=
9	-	-	-	-	-	=	0.023	-	-	-	=
10	-	-	-	-	-	=	0.02	-	-	-	=
11	+	+	+	+	+	=	2.932	+	+	+	=
12	+	+	+	+	+	=	2.826	+	+	+	=
13	+	+	+	+	+	=	2.868	+	+	+	=
14	+	+	+	+	+	=	2.921	+	+	+	=
15	-	-	-	-	-	=	0.021	-	-	-	=
16	-	-	-	-	-	=	0.020	-	-	-	=
17	-	-	-	-	-	=	0.020	-	-	-	=
18	-	-	-	-	-	=	0.020	-	-	-	=
19	+	+	+	+	+	=	2.962	+	+	+	=
20	+	+	+	+	+	=	3.030	+	+	+	=
21	+	+	+	+	+	=	2.974	+	+	+	=
22	+	+	+	+	+	=	2.951	+	+	+	=
23	+	+	+	+	+	=	2.985	+	+	+	=
24	+	+	+	+	+	=	2.983	+	+	+	=
Total flora of milk (UFC/ml):					13000						

## Lab J

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	1.993	+	+	+	=
2	+	+	+	+	+	=	2.095	+	+	+	=
3	-	-	-	-	-	=	<0.200	-	-	-	=
4	-	-	-	-	-	=	<0.200	-	-	-	=
5	+	+	+	+	+	=	2.313	+	+	+	=
6	+	+	+	+	+	=	2.206	+	+	+	=
7	+	+	+	+	+	=	1.964	+	+	+	=
8	+	+	+	+	+	=	2.156	+	+	+	=
9	-	-	-	-	-	=	<0.200	-	-	-	=
10	-	-	-	-	-	=	<0.200	-	-	-	=
11	+	+	+	+	+	=	2.227	+	+	+	=
12	+	+	+	+	+	=	2.327	+	+	+	=
13	+	+	+	+	+	=	2.387	+	+	+	=
14	+	+	+	+	+	=	2.195	+	+	+	=
15	-	-	-	-	-	=	<0.200	-	-	-	=
16	-	-	-	-	-	=	<0.200	-	-	-	=
17	-	-	-	-	-	=	<0.200	-	-	-	=
18	-	-	-	-	-	=	<0.200	-	-	-	=
19	+	+	+	+	+	=	1.800	+	+	+	=
20	+	+	+	+	+	=	1.942	+	+	+	=
21	+	+	+	+	+	=	2.233	+	+	+	=
22	+	+	+	+	+	=	2.319	+	+	+	=
23	+	+	+	+	+	=	2.300	+	+	+	=
24	+	+	+	+	+	=	2.82	+	+	+	=
Total flora of milk (UFC/ml):					5100						

**Lab K**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results	
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result		
	XLD	BGAM	XLD	BGAM								
1	+	+	+	+	+	=	1.113	+	+	+	=	
2	+	+	+	+	+	=	1.123	+	+	+	=	
3	-	-	-	-	-	=	0.056	-	-	-	=	
4	-	-	-	-	-	=	0.048	-	-	-	=	
5	+	+	+	+	+	=	1.150	+	+	+	=	
6	+	+	+	+	+	=	1.192	+	+	+	=	
7	+	+	+	+	+	=	1.183	+	+	+	=	
8	+	+	+	+	+	=	1.240	+	+	+	=	
9	-	-	-	-	-	=	0.055	-	-	-	=	
10	-	-	-	-	-	=	0.054	-	-	-	=	
11	+	+	+	+	+	=	1.200	+	+	+	=	
12	+	+	+	+	+	=	1.143	+	+	+	=	
13	+	+	+	+	+	=	1.160	+	+	+	=	
14	+	+	+	+	+	=	1.187	+	+	+	=	
15	-	-	-	-	-	=	0.046	-	-	-	=	
16	-	-	-	-	-	=	0.044	-	-	-	=	
17	-	-	-	-	-	=	0.050	-	-	-	=	
18	-	-	-	-	-	=	0.049	-	-	-	=	
19	+	+	+	+	+	=	1.219	+	+	+	=	
20	+	+	+	+	+	=	1.080	+	+	+	=	
21	+	+	+	+	+	=	1.232	+	+	+	=	
22	+	+	+	+	+	=	1.181	+	+	+	=	
23	+	+	+	+	+	=	1.169	+	+	+	=	
24	+	+	+	+	+	=	1.235	+	+	+	=	
Total flora of milk (UFC/ml):		7300										

**Lab L**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results	
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result		
	XLD	BGAM	XLD	BGAM								
1	+	+	+	+	+	=	2.952	+	+	+	=	
2	+	+	+	+	+	=	2.913	+	+	+	=	
3	-	-	-	-	-	=	0.014	-	-	-	=	
4	-	-	-	-	-	=	0.013	-	-	-	=	
5	+	+	+	+	+	=	2.832	+	+	+	=	
6	+	+	+	+	+	=	2.804	+	+	+	=	
7	+	+	+	+	+	=	2.665	+	+	+	=	
8	+	+	+	+	+	=	2.666	+	+	+	=	
9	-	-	-	-	-	=	0.013	-	-	-	=	
10	-	-	-	-	-	=	0.009	-	-	-	=	
11	+	+	+	+	+	=	2.720	+	+	+	=	
12	+	+	+	+	+	=	2.734	+	+	+	=	
13	+	+	+	+	+	=	2.895	+	+	+	=	
14	+	+	+	+	+	=	2.949	+	+	+	=	
15	-	-	-	-	-	=	0.013	-	-	-	=	
16	-	-	-	-	-	=	0.015	-	-	-	=	
17	-	-	-	-	-	=	0.015	-	-	-	=	
18	-	-	-	-	-	=	0.015	-	-	-	=	
19	+	+	+	+	+	=	2.721	+	+	+	=	
20	+	+	+	+	+	=	2.689	+	+	+	=	
21	+	+	+	+	+	=	2.708	+	+	+	=	
22	+	+	+	+	+	=	2.838	+	+	+	=	
23	+	+	+	+	+	=	2.756	+	+	+	=	
24	+	+	+	+	+	=	2.823	+	+	+	=	
Total flora of milk (UFC/ml):		250										

**Lab M**

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results	
	RVS		MKTn		Result		Test OD	Test result	Identification	Final result		
	XLD	BGAM	XLD	BGAM								
1	+	+	+	+	+	=	1.863	+	+	+	=	
2	+	+	+	+	+	=	1.759	+	+	+	=	
3	-	-	-	-	-	=	0.009	-	-	-	=	
4	-	-	-	-	-	=	0.008	-	-	-	=	
5	+	+	+	+	+	=	1.777	+	+	+	=	
6	+	+	+	+	+	=	1.799	+	+	+	=	
7	+	+	+	+	+	=	1.889	+	+	+	=	
8	+	+	+	+	+	=	1.898	+	+	+	=	
9	-	-	-	-	-	=	0.007	-	-	-	=	
10	-	-	-	-	-	=	0.009	-	-	-	=	
11	+	+	+	+	+	=	1.981	+	+	+	=	
12	+	+	+	+	+	=	1.811	+	+	+	=	
13	+	+	+	+	+	=	1.950	+	+	+	=	
14	+	+	+	+	+	=	1.900	+	+	+	=	
15	-	-	-	-	-	=	0.009	-	-	-	=	
16	-	-	-	-	-	=	0.011	-	-	-	=	
17	-	-	-	-	-	=	0.009	-	-	-	=	
18	-	-	-	-	-	=	0.010	-	-	-	=	
19	+	+	+	+	+	=	1.899	+	+	+	=	
20	+	+	+	+	+	=	1.809	+	+	+	=	
21	+	+	+	+	+	=	1.800	+	+	+	=	
22	+	+	+	+	+	=	1.901	+	+	+	=	
23	+	+	+	+	+	=	1.911	+	+	+	=	
24	+	+	+	+	+	=	1.915	+	+	+	=	
Total flora of milk (UFC/ml):		25000										

## Lab N

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	2.732	+	+	+	=
2	+	+	+	+	+	=	2.648	+	+	+	=
3	-	-	-	-	-	=	0.015	-	-	-	=
4	-	-	-	-	-	=	0.017	-	-	-	=
5	+	+	+	+	+	=	3.035	+	+	+	=
6	+	+	+	+	+	=	2.561	+	+	+	=
7	+	+	+	+	+	=	2.266	+	+	+	=
8	+	+	+	+	+	=	2.893	+	+	+	=
9	-	-	-	-	-	=	0.022	-	-	-	=
10	-	-	-	-	-	=	0.006	-	-	-	=
11	+	+	+	+	+	=	2.933	+	+	+	=
12	+	+	+	+	+	=	2.687	+	+	+	=
13	+	+	+	+	+	=	2.359	+	+	+	=
14	+	+	+	+	+	=	1.515	+	+	+	=
15	-	-	-	-	-	=	0.017	-	-	-	=
16	-	-	-	-	-	=	0.016	-	-	-	=
17	-	-	-	-	-	=	0.018	-	-	-	=
18	-	-	-	-	-	=	0.008	-	-	-	=
19	+	+	+	+	+	=	3.018	+	+	+	=
20	+	+	+	+	+	=	1.207	+	+	+	=
21	+	+	+	+	+	=	1.930	+	+	+	=
22	+	+	+	+	+	=	2.915	+	+	+	=
23	+	+	+	+	+	=	2.811	+	+	+	=
24	+	+	+	+	+	=	2.260	+	+	+	=
Total flora of milk (UFC/ml):					120						

## Lab O

Code sample	Reference method ISO 6579					Comparison / expected results	Alternative method <i>Salmonella</i> OPTIMA				Comparison / expected results
	RVS		MKTTn		Result		Test OD	Test result	Identification	Final result	
	XLD	BGAM	XLD	BGAM							
1	+	+	+	+	+	=	1.384	+	+	+	=
2	+	+	+	+	+	=	1.945	+	+	+	=
3	-	-	-	-	-	=	0.016	-	-	-	=
4	-	-	-	-	-	=	0.015	-	-	-	=
5	+	+	+	+	+	=	2.965	+	+	+	=
6	+	+	+	+	+	=	9.999	+	+	+	=
7	+	+	+	+	+	=	9.999	+	+	+	=
8	+	+	+	+	+	=	9.999	+	+	+	=
9	-	-	-	-	-	=	0.014	-	-	-	=
10	-	-	-	-	-	=	0.013	-	-	-	=
11	+	+	+	+	+	=	9.999	+	+	+	=
12	+	+	+	+	+	=	9.999	+	+	+	=
13	+	+	+	+	+	=	2.789	+	+	+	=
14	+	+	+	+	+	=	2.653	+	+	+	=
15	-	-	-	-	-	=	0.015	-	-	-	=
16	-	-	-	-	-	=	0.014	-	-	-	=
17	-	-	-	-	-	=	0.014	-	-	-	=
18	-	-	-	-	-	=	0.013	-	-	-	=
19	+	+	+	+	+	=	2.987	+	+	+	=
20	+	+	+	+	+	=	2.954	+	+	+	=
21	+	+	+	+	+	=	9.999	+	+	+	=
22	+	+	+	+	+	=	9.999	+	+	+	=
23	+	+	+	+	+	=	2.979	+	+	+	=
24	+	+	+	+	+	=	2.692	+	+	+	=
Total flora of milk (UFC/ml):					180						

APPENDIX F :  
INTERLABORATORY STUDY  
-  
ACCORDANCE

ALTERNATIVE METHOD

Level L0

Laboratory	Nb of negatives expected	Nb of negatives obtained	Probability of negatives	Probability of negative pairs	Probability of positives	Probability of positive pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

Level L1

Laboratory	Nb of positives expected	Nb of positives obtained	Probability of positives	Probability of positive pairs	Probability of negatives	Probability of negative pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

Level L2

Laboratory	Nb of positives expected	Nb of positives obtained	Probability of positives	Probability of positive pairs	Probability of negatives	Probability of negative pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

REFERENCE METHOD

Level L0

Laboratory	Nb of negatives expected	Nb of negatives obtained	Probability of negatives	Probability of negative pairs	Probability of positives	Probability of positive pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

Level L1

Laboratory	Nb of positives expected	Nb of positives obtained	Probability of positives	Probability of positive pairs	Probability of negatives	Probability of negative pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

Level L2

Laboratory	Nb of positives expected	Nb of positives obtained	Probability of positives	Probability of positive pairs	Probability of negatives	Probability of negative pairs	Probability of identical result pairs	
Lab A	8	8	1,00	1,00	0,00	0,00	1,00	
Lab B	8	8	1,00	1,00	0,00	0,00	1,00	
Lab C	8	8	1,00	1,00	0,00	0,00	1,00	
Lab D	8	8	1,00	1,00	0,00	0,00	1,00	
Lab E	8	8	1,00	1,00	0,00	0,00	1,00	
Lab G	8	8	1,00	1,00	0,00	0,00	1,00	
Lab H	8	8	1,00	1,00	0,00	0,00	1,00	
Lab I	8	8	1,00	1,00	0,00	0,00	1,00	
Lab J	8	8	1,00	1,00	0,00	0,00	1,00	
Lab K	8	8	1,00	1,00	0,00	0,00	1,00	
Lab L	8	8	1,00	1,00	0,00	0,00	1,00	
Lab M	8	8	1,00	1,00	0,00	0,00	1,00	
Lab N	8	8	1,00	1,00	0,00	0,00	1,00	
Lab O	8	8	1,00	1,00	0,00	0,00	1,00	
							<b>Mean:</b>	<b>1,00</b>
							<b>Accordance:</b>	<b>100,0%</b>

APPENDIX G :

INTERLABORATORY STUDY  
-  
CONCORDANCE

**ALTERNATIVE METHOD**

Number of laboratories 14  
 Number of positives per laboratory 8

**Level L0**

Lab	Nb of negatives expected	Nb of negatives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			

Number of laboratories 14  
 Number of positives per laboratory 8

**Level L1**

Lab	Nb of positives expected	Nb of positives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			

Number of laboratories 14  
 Number of positives per laboratory 8

**Level L2**

Lab	Nb of positives expected	Nb of positives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			

REFERENCE METHOD

Number of laboratories 14  
 Number of positives per laboratory 8

Level L0

Lab	Nb of negatives expected	Nb of negatives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			

Number of laboratories 14  
 Number of positives per laboratory 8

Level L1

Lab	Nb of positives expected	Nb of positives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			

Number of laboratories 14  
 Number of positives per laboratory 8

Level L2

Lab	Nb of positives expected	Nb of positives obtained	Inter-laboratory pairs with the same result	Total number of inter-laboratory pairs
Lab A	8	8	832	832
Lab B	8	8	832	832
Lab C	8	8	832	832
Lab D	8	8	832	832
Lab E	8	8	832	832
Lab G	8	8	832	832
Lab H	8	8	832	832
Lab I	8	8	832	832
Lab J	8	8	832	832
Lab K	8	8	832	832
Lab L	8	8	832	832
Lab M	8	8	832	832
Lab N	8	8	832	832
Lab O	8	8	832	832
<b>Total</b>			<b>11648</b>	<b>11648</b>
<b>Concordance</b>	100%			