NF VALIDATION
Validation of alternative analytical methods
Application in food microbiology

Summary report
Renewal validation study
Validation study according to the EN ISO 16140-2:2016

Reveal® 2.0 Salmonella

(Certificate number: NEO 35/01 – 10/11)

for the detection of Salmonella spp in meat, egg, seafood and multi-component foods or meal components products

Qualitative method

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This report included 57 pages, with 6 appendixes. Only copies including the totality of this report are authorized. Competences of the laboratory are certified by COFRAC accreditation for the analyses marked with symbol Δ

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Quality Assurance documents related to this study can be consulted upon request from NEOGEN. The technical protocol and the interpretation of the results were managed according to the EN ISO 16140-2:2016 standard and the AFNOR Certification technical rules (revision N°6).

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Alternative method*:* Reveal® *2.0 Salmonella* method

Validation protocols*:*
EN ISO 16140-2 (2016): Microbiology of the food chain - Method validation *Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method.*

AFNOR Technical Rules (revision 6)

Reference methods*:*
EN ISO 6579:2002 - Horizontal method for the detection of *Salmonella* spp.

EN ISO 6579-1: 2017 - Microbiology of the food chain -- Horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 1: Detection of *Salmonella* spp. [Δ]

Scope: Meat, egg, seafood, multi-component foods or meal components products

Certification body: AFNOR Certification (http://nf-validation.afnor.org/)

[Δ] Analyses performed according to the COFRAC accreditation

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1 Introduction

The **Reveal® 2.0 *Salmonella*** method was validated in October 2011 (Initial validation - certificate number NEO 35/01 – 10/11) and renewed in July 2015 and in May 2020, for the detection of *Salmonella* spp in meat, egg, seafood and multi-component foods or meal components products.

Year	Expert laboratory	Comments
2011	ADRIA DEVELOPPEMENT	**Initial validation** according to EN ISO 16140 (October 2003): Food microbiology – Protocol for the validation of alternative methods
2015	ADRIA DEVELOPPEMENT	**Renewal** suppression of protocols 3 and 4
2020	AdGène Laboratoire	**Renewal** according to the EN ISO 16140-2 (June 2016) and requirements of the AFNOR technical rules (Revision 6)

2 Methods description

2.1 Alternative method

2.1.1 Principle

The method utilizes the REVIVE medium which provides *Salmonella* with readily available nutrients and other factors required for its recovery from a stressed or injured condition. After a brief enrichment in REVIVE, selective enrichment in Rappaport-Vassiliadis (RV) then favors *Salmonella* growth to levels detectable by the Reveal test device (protocol 1).

For certain matrices, the initial non-selective enrichment step may be bypassed and the sample is introduced directly into the RV medium (protocol 2).

For optimal results with egg products, samples are tested following enrichment in buffered peptone water and Rappaport-Vassiliadis broth in accordance with the EN ISO 6579-1 reference procedure for *Salmonella* spp (protocol 5).

2.1.2 Protocols

Three protocols were used depending of the sample to be tested (See **Appendix 1**).
It is possible to store the enrichment broth 72h at 5°C in all cases.

Within the framework of the NF VALIDATION mark, all positive results by the Reveal 2.0 Salmonella method must be confirmed by one of the options described in the technical notice, summarized below:

- According to the standard tests described in the methods standardized by CEN or ISo from the colonies (including the purification step)

- Latex test

2.1.3 Restrictions

The Reveal® 2.0 method detects the *Salmonella enterica* serovars belonging to the somatic groups A to E, with the exception of *Salmonella* Paratyphi A.
Protocols 3 and 4 are excluded from the NF Validation scope and milk, cheeses and poultry rinses are also excluded from the NF Validation scope.

2.2 Reference method

The reference method used for the initial and first renewal was the EN ISO 6579 standard (2002): Horizontal method for the detection of *Salmonella* spp.

The reference method used for the 2020 renewal study was the NF EN ISO 6579-1 (2017) for Microbiology of the food chain -- Horizontal method for the detection, enumeration and serotyping of *Salmonella* -- Part 1: Detection of *Salmonella* spp.[Δ]

The flow diagrams are given in **Appendix 2.**

2.3 Study model

It is an unpaired study design for protocols 1 and 2 and a paired study design for the protocol 5.

3 Method comparison study

The study was carried out on a diversity of samples and strains representative of agro-food products. This does not constitute an exhaustive list of the different matrices included in the scope. For any comment on the alternative method, please contact AFNOR Certification at ***http://nf-validation.afnor.org/contact-2/.***

3.1 Sensitivity study

The sensitivity study (SE) aims to compare the sensitivity of the alternative method to the reference method.

3.1.1 Number and nature of samples

During the initial validation in 2011, 393 samples were tested, 223 positives and 170 negatives. In 2015, during the first renewal, 2 protocols were suppressed.

Additional tested were carried out during the second renewal in 2020, in order to comply with the new ISO 16140-2. 286 samples were analysed, 152 positives and 134 negatives.

[Δ] Analyses performed according to the COFRAC accreditation

The artificial contaminations are presents in **Appendix 3.**

Table 1: Distribution per tested category and type

Category	Type	Positive samples	Negative samples	Total
Meat products	Raw poultry	19	7	26
	Raw except poultry	12	23	35
	Processed	8	12	20
	Total	39	42	81
Egg products	Dehydrated egg products	10	10	20
	Heat processed egg products	10	10	20
	Non heat processed egg products	10	10	20
	Total	30	30	60
Seafood products	Unprocessed	10	10	20
	Ready-to-cook fish, smoked and seafood (processed)	7	14	21
	Cooked fishery products	22	7	29
	Total	39	31	70
Multi-component foods or meal components products	Pastries	12	9	21
	Composite processed foods ready to eat	9	13	22
	Ready to (re)heat food: refrigerated	23	9	32
	Total	44	31	75
Total		**152**	**134**	**286**

3.1.2 Protocols

Three protocols were used depending of the samples:

All processed food, except low moisture products, cheeses, milks and egg products	25g + 200ml REVIVE + 200ml 2RV 16-20h at 41.5°C ± 1°C
All non-processed food, poultry rinses, except milks, cheeses and egg products	25g + 200ml 1RV 20-24h at 41.5°C ± 1°C
Egg products	25g + 225ml Buffer peptone water 16-20h at 37°C ± 1°C 0.1ml into 10ml RV broth 22-26h at 41.5°C ± 1°C

The minimum incubation time was applied during the study.
The storage of the enrichment broths at 2-8°C for 72h was also tested.

3.1.3 Test results

Raw data are available in **Appendix 4.**

Table 2: Summary of the results obtained with the reference method and the alternative method for each category

Category	Type	PA	NA	PD	ND	PPND	PPNA	Total
Meat products	Raw poultry	14	7	4	1	0	0	26
	Raw except poultry	5	23	3	4	0	0	35
	Processed	6	10	0	1	1	2	20
	Total	**25**	**40**	**7**	**6**	**1**	**2**	**81**
Egg products	Dehydrated egg products	10	10	0	0	0	0	20
	Heat processed egg products	10	10	0	0	0	0	20
	Non heat processed egg products	10	10	0	0	0	0	20
	Total	**30**	**30**	**0**	**0**	**0**	**0**	**60**
Seafood products	Unprocessed	9	10	0	1	0	0	20
	Ready-to-cook fish, smoked and seafood (processed)	6	14	0	1	0	0	21
	Cooked fishery products	19	7	1	2	0	0	29
	Total	**34**	**31**	**1**	**4**	**0**	**0**	**70**
Multi-component foods or meal components products	Pastries	10	9	2	0	0	0	21
	Composite processed foods ready to eat	5	12	3	1	0	1	22
	Ready to (re)heat food : refrigerated	23	8	0	0	0	1	32
	Total	**38**	**29**	**5**	**1**	**0**	**2**	**75**
All samples		**127**	**130**	**13**	**11**	**1**	**4**	**286**

*PA = Positive agreement / *NA = Negative agreement / *PD = positive deviation / *ND = Negative deviation / *PPND = negative deviation due to a false positive result with the alternative method / *PPNA = negative agreement due to a false positive result with the alternative method

Table 3: Summary of the results obtained with the reference method and the alternative method for each protocol

Protocol	PA	NA	PD	ND	PPND	PPNA	Total
1	56	43	6	5	1	4	115
2	27	45	7	6	0	0	85
5	44	42	0	0	0	0	86
Total	**127**	**130**	**13**	**11**	**1**	**4**	**286**

3.1.3.1 Calculation of relative trueness (RT), sensitivity (SE) and false positive ration (FPR)

The calculations used for the sensitivities, the relative trueness and the false positive ratio are indicated in table 4.

Table 4: Summary of calculation and results

	EN ISO 16140-2 formula	All categories results
Sensitivity for the reference method	SEref = [(PA + ND) / (PA + ND + PD)] x 100 %	91.4%
Sensitivity for the alternative method	SEalt= [(PA + PD) / (PA + ND + PD)] x 100 %	92.7%
Relative trueness	RT = (PA + NA) / N x 100 %	91.3%
False positive ratio FP = PPNA + PPND	FPR = FP / NA x 100%	3.8%

The results of the calculations are indicated in table 5.

Table 5: Calculations of the sensitivities (SE), the relative trueness (RT) and the false positive ration (FPR)

Category	Type	PA	NA	PD	ND	PPND	PPNA	Se alt %	Se ref %	RT %	FPR %
Meat products	Raw poultry	14	7	4	1	0	0	94,7	78,9	80.8	0,0
	Raw except poultry	5	23	3	4	0	0	66,7	75,0	80,0	0,0
	Processed	6	10	0	1	1	2	85,7	100,0	90,0	30,0
	Total	**25**	**40**	**7**	**6**	**1**	**2**	**84,2**	**81,6**	**82.7**	**7,5**
Egg products	Dehydrated egg products	10	10	0	0	0	0	100,0	100,0	100,0	0,0
	Heat processed egg products	10	10	0	0	0	0	100,0	100,0	100,0	0,0
	Non heat processed egg products	10	10	0	0	0	0	100,0	100,0	100,0	0,0
	Total	**30**	**30**	**0**	**0**	**0**	**0**	**100,0**	**100,0**	**100,0**	**0,0**
Seafood products	Unprocessed	9	10	0	1	0	0	90,0	100,0	95,0	0,0
	Ready-to-cook fish, smoked and seafood (processed)	6	14	0	1	0	0	85,7	100,0	95,2	0,0
	Cooked fishery products	19	7	1	2	0	0	90,9	95,5	89.7	0,0
	Total	**34**	**31**	**1**	**4**	**0**	**0**	**89,7**	**97,4**	**92,9**	**0,0**
Multi-component foods or meal components products	Pastries	10	9	2	0	0	0	100,0	83,3	90,5	0,0
	Composite processed foods ready to eat	5	12	3	1	0	1	88,9	66,7	81,8	8,3
	Ready to (re)heat food: refrigerated	23	8	0	0	0	1	100,0	100,0	100,0	12,5
	Total	**38**	**29**	**5**	**1**	**0**	**2**	**97,7**	**88,6**	**92,0**	**6,9**
All samples		**127**	**130**	**13**	**11**	**1**	**4**	**92.7**	**91.4**	**91.3**	**3.8**

3.1.3.2 Analysis of the discordant results (ND, PD) and interpretation based on the EN ISO 16140-2 acceptability limits (AL)

Analysis of the negative deviations (ND)

Table 6: Negative deviations samples

Sample number	Product	Protocol	Strain	Inoculation level/25g	Agreement
37	**Surimi**	1	*Salmonella Agona F118*	14-8-7-7-3(7,8)	**ND**
39	**Minced fish**	1	*Salmonella Derby F81*	1-1-0-0-3(1,0)	**ND**
460	**Mix salad**	1	*Salmonella Virchow F276*	6-4-3-7-5(5,0)	**ND**
2079	Ready to eat food	5			**ND**
4242	Marinated chicken fillets	1			**PPND**
4563	Raw sausage	1			**ND**
4682	**Cucumber-salmon mix**	2	*Salmonella Saintpaul F31*	4-5-2-3-3(2,8)	**ND**
5179	Roulade	2			**ND**
5208	Fresh porkmeat	2			**ND**
5213	Raw pork meat	2			**ND**
5214	Pork meat and ribs	2			**ND**
5227	Chicken skin	2			**ND**

Among the 12 ND, 4 were artificially contaminated, and all the 3 protocols were concerned.

Analysis of the positive deviations (PD)

Table 7: Positive deviations samples

Sample number	Product	Protocol	Strain	Inoculation level/25g	Agreement
35	**Tarama**	1	Salmonella Agona F118	14-8-7-7-3 (7,8)	**PD**
3607	**Cappuccino**	1	*Salmonella Meleagridis 505*	2-4-4-1-1(2,4)	**PD**
3609	**Pastry(cerisier)**	1	*Salmonella Meleagridis 505*	2-4-4-1-1(2,4)	**PD**
3621	**Vegetables mix**	1	*Salmonella Mbandaka Ad 914*	3-4-6-2-0(3,0)	**PD**
3623	**Sandwich**	1	*Salmonella Mbandaka Ad 914*	3-4-6-2-0(3,0)	**PD**
3665	**Pastry**	1	*Salmonella Typhimurium Ad 1333*	7-8-4-6-3(5,6)	**PD**
4404	Mechanically deboned poultry meat	2			**PD**
4541	Pork minced meat	2			**PD**
4542	Pork minced meat	2			**PD**
5172	Chicken hearts	2			**PD**
5183	Ground chicken meat	2			**PD**
5206	Pork minced meat	2			**PD**
5215	Hen meat	2			**PD**

All the PD results observed with the protocol 1 were obtained with artificially contaminated samples. On the contrary, all the PD results observed with the protocol 2 were obtained with naturally contaminated. No discordant results were obtained with the protocol 5. This was probably linked to the paired study design.

Interpretation of the results according to the EN ISO 16140-2 acceptability limits (AL)

The calculation was done for the paired and unpaired methods.

Table 8: Comparison to the AL limit

Categories	ND – PD	AL	ND + PD	AL
Meat product	0	**3**	/	**/**
Egg product	0	**3**	0	**6**
Seafood products	3	**3**	/	**/**
Multi-component foods or meal components products	-4	**3**	/	**/**
All categories	-1	**5**	/	**/**
Protocol 1	0	**3**	/	**/**
Protocol 2	-1	**3**	/	**/**
Protocol 5	0	**3**	0	**6**

The results are consistent with the EN ISO 16140-2 acceptability limits for each category, for all categories and for each protocol.

3.1.3.3 Results and analysis after the storage of the enrichment broths at 2-8°C for 72h

167 enrichment broths were tested again after storage for 72h at 5°C ± 3°C. The analyses of discordant results are indicated in Table 9.

Table 9: Results of the discordant samples after storage at 2-8°C

Sample number	Product	Protocol	Final result	Agreement	Enrichment storage during 72H-4°c			
					Test result	Confirmation	Final result	Agreement
37	Surimi	1	-	ND	-	-	-	ND
39	Minced fish	1	-	ND	-	-	-	ND
460	Mix salad	1	-	ND	-	-	-	ND
2079	Ready to eat food	5	-	ND	-	/	-	ND
4242	Marinated chicken fillets	1	-(PPNC)	PPND	+ (weak reaction)	-	-	PPND
4563	Raw sausage	1	-	ND	-	-	-	ND
4682	Cucumber-salmon mix	2	-	ND	-	-	-	ND
5179	Roulade	2	-	ND	-	-	-	ND
5208	Fresh pork meat	2	-	ND	-	-	-	ND
5213	Raw pork meat	2	-	ND	-	-	-	ND
5214	Pork meat and ribs	2	-	ND	-	-	-	ND
5227	Chicken skin	2	-	ND	-	-	-	ND
35	Tarama	1	+	PD	+	+	+	PD
3607	Cappuccino	1	+	PD	+	+	+	PD
3609	Pastry(cerisier)	1	+	PD	+	+	+	PD
3621	Vegetables mix	1	+	PD	+	+	+	PD
3623	Sandwich	1	+	PD	+ weak reaction	+	+	PD
3665	Pastry	1	+	PD	+	+	+	PD
4404	Mechanically deboned poultry meat	2	+	PD	+ (weak reaction)	+	+	PD
4541	Pork minced meat	2	+	PD	+	+	+	PD
4542	Pork minced meat	2	+	PD	+	+	+	PD
5172	Chicken hearts	2	+	PD	+	+	+	PD
5183	Ground chicken meat	2	+	PD	+	+	+	PD
5206	Pork minced meat	2	+	PD	+	+	+	PD
5215	Hen meat	2	+	PD	+	+	+	PD

After storage for 72h at 2-8°C, no differences have been observed in the discordant results.

3.2 Relative detection level study

This study aims to assess the detection level (LOD) of the alternative method compared to the reference method.
The level of detection (LOD) is defined as the minimum concentration of organisms which gives a proof of growth in a liquid medium, with a probability of P = 0.95 when they are inoculated in a defined culture medium and incubated under defined conditions. The relative detection level (RLOD) is defined as the ratio of the LOD of the alternative method to that of the reference method.

$$RLOD = \frac{LOD_{alt}}{LOD_{ref}}$$

3.2.1 Protocol

During the initial validation (2011), three matrix/strain pairs were tested. Four levels were tested. Six replicates of each combination were prepared:

- Ground beef inoculated with *Salmonella* Infantis 128,
- Egg product inoculated with *Salmonella* Enteritidis 657
- Ready to eat food (pasta) inoculated with *Salmonella* Anatum 6140.

The contaminations levels tested are presented below:

- Level 1: 0 UFC/g or /ml
- Level 2: level necessary to obtain 0 to 50% positives,
- Level 3: level necessary to obtain 50 to 75% positives,
- Level 4: level necessary to obtain de 100% positives.

The samples were analysed by both methods, and the background microflora was enumerated.

During the renewal study the RLOD study has been completed with the following matrix/strain pair:

- Saithe fillet inoculated with *Salmonella* Bareilly

The protocol used was the same as the initial validation (Protocol 2):

- Level 1: 0 UFC/g (5 samples)
- Level 2: low level (20 samples)
- Level 3: high level (5 samples)

The inoculation was made by spiking, and the injury protocol was: 10min at 56°C.

The raw data are given in **Appendix 5**.

3.2.2 Results

The RLOD calculations for all matrix/strain were performed using the Excel datasheet available at http://standards.iso.org/iso/16140. Results are given in the Table 10.

Table 10: Calculation of the RLOD

Name	RLOD	RLODL	RLODU	b=ln(RLOD)	sd(b)	z-Test statistic	p-value
Egg products	**1,000**	0,422	2,371	0,000	0,432	0,000	1,000
Ready to eat food	**0,429**	0,153	1,206	-0,846	0,517	1,637	1,898
Ground beef	**1,745**	0,719	4,233	0,557	0,443	1,256	0,209
Saithe fillet	**1,357**	0,518	3,554	0,305	0,481	0,634	0,526
Combined	**1,117**	0,730	1,710	0,110	0,213	0,519	0,604

- RLOD: the estimated relative level of detection value
- RLODU: the upper limit of the 95% confidence interval for RLOD
- RLODL: the lower limit of the 95% confidence interval for RLOD
- b=ln(RLOD): logarithm of the RLOD value
- sd(b): standard deviation of b
- z-Test statistic: absolute value of the test statistic of the z-Test with the null hypothesis H0: b=0
- p-value: p-value of the z-Test

The calculation of LOD50 according to Wilrich & Wilrich, *Journal of AOAC International* **92**(6), 1763-1772 (2009), tests are given below.

Results of the PODLOD calculations

Matrix No. i	Matrix Designation $Matrix_i$	Matrix effect F_i	Log matrix effect f_i	SD of log matrix effect s_{fi}	$LOD_{50\%}$ = 50% limit of detection in cfu/g or cfu/ml: Detection limit $d_{0.5,i}$	Lower conf. limit $d_{0.5,i,L}$	Upper conf. limit $d_{0.5,i,U}$	$LOD_{95\%}$ = 95% limit of detection in cfu/g or cfu/ml: Detection limit $d_{0.95,i}$	Lower conf. limit $d_{0.95,i,L}$	Upper conf. limit $d_{0.95,i,U}$	Test statistic matrix effect $\|z_i\|$
1	Egg products	0,051	-2,982	0,291	0,547	0,305	0,980	2,364	1,320	4,233	0,105
2	Ready to eat food	0,049	-3,018	0,290	0,567	0,318	1,012	2,451	1,373	4,374	0,012
3	Ground beef	0,033	-3,417	0,351	0,845	0,419	1,705	3,652	1,810	7,370	1,933
4	Saithe fillet	0,034	-3,390	0,282	0,822	0,468	1,445	3,554	2,023	6,245	0,014
Combined results		0,040	-3,209	0,148	0,686	0,510	0,923	2,965	2,205	3,987	1,819
		based on the data of matrices 1, 2, 3 and 4									

3.2.3 Conclusion

The RLOD is under AL = 1.5 for the paired design (Eggs products – Protocol 5) and under AL = 2.5 for the unpaired designs (other foods, protocols 1 and 2). So, the LODs of the alternative method are similar to the LODs of the reference method in the different food categories.

3.3 Inclusivity / Exclusivity

Inclusivity is the ability of the alternative method to detect the target strain from a wide range of strains. Exclusivity is the lack of interference with an appropriate range of non-target strains of the alternative method.

3.3.1 Test protocols

- **Protocol for inclusivity (2011 and 2020 studies)**: *Salmonella* strains cultures were performed in BHI medium at 37°C. Dilutions were done in order to inoculate about 10 cells/225 ml Revive medium. The alternative method protocol was then performed following protocol n° 1. The recovery of some specific strains was observed by adding 25 ml of UHT milk in the enrichment broth.

- **Protocol for exclusivity (2011 study)**: negative strains cultures were performed in BHI, incubated at 37°C. Dilutions were done in order to inoculate 10^5 cell/ml BPW. The Reveal *Salmonella* test was then performed.

3.3.2 Results

The results (raw data) are given in **Appendix 6**.

- **Inclusivity**

In the initial 2011 validation study, among the 56 tested target strains, 5 gave negative Reveal *Salmonella* test results: *Salmonella* Gallinarum *biovar* Pullorum Ad 300, *Salmonella* Paratyphi A ATCC 9150, ATCC 11511 and CIP 5541, and *Salmonella* Paratyphi B Ad 301. These strains were also tested by the ISO 6579 standard method; they were all detected.
Additional tests were performed with *Salmonella* Paratyphi A strains. The 4 tested strains gave negative Reveal *Salmonella* tests results. When BHI cultures were done, weak reactions of the Reveal *Salmonella* tests were observed.
44 additional strains were tested during the 2020 renewal study; all the strains tested gave positive results with the Reveal *Salmonella* method.

For inclusivity, 95 of strains of *Salmonella* were detected among 100 tested. The 5 unrecognized strains are strains of *Salmonella* Gallinarum *biovar* Pullorum Ad 300, *Salmonella* Paratyphi A ATCC 9150, ATCC 11511 and CIP 5541, and *Salmonella* Paratyphi B Ad 301.

- **Exclusivity**

In the initial 2011 validation study, for exclusivity, the study of 30 strains not *Salmonella* did not highlight the presence of cross-reactions.

3.3.2.1 Conclusion

The Reveal *Salmonella* method is selective and specific but did not detect the tested Paratyphi A strains.

3.4 Practicability

These data come from the previous validation study (2011, ADRIA DEVELOPPEMENT)

The Reveal *Salmonella* method practicability was evaluated according to the AFNOR technical rules.

✓ *Packaging, volume of reagents, storage conditions, and kit shelf-life*

Revive Medium for *Salmonella* (item n° 9705) – Storage 15 – 30°C

* 20 bottles
* 20 stomacher-type bags
* 1 graduated cup

Rappaport Vassiliadis Broth (2 x conc) (item n° 9715) - Storage 15 – 30°C

* 20 bottles
* 20 stomacher-type bags
* 1 graduated cup

M broth (item n° 9722) - Storage 2 – 8°C

* 20 bottles

Reveal 2.0 *Salmonella* test system (item n° 9705) – Storage 15 – 30°C

* Devices and reagents required for 20 analyses

The shelf-life is given on each package:

- Reveal *Salmonella* 2.0 devices: 6 months
- Revive broth: 2 years
- Rappaport Vassiliadis broth: 2 years
- M broth: 4 years

✓ *Specific equipment*

No specific equipment is required.

✓ *Additional reagents*

Sterile water

✓ *Training*

Less than 1 day is required for technicians with microbiology background.

✓ *Technician background*

Technician qualified in microbiology

✓ *Steps in common with reference method*

Pre-enrichment and enrichment steps of the protocol 5 are common with the reference method.

✓ *Workflow study (in minutes)*

	Reference method 30 samples	Alternative method (Protocol n°2) 30 samples
Sampling	30	30
Stomach	60	60
RVS and MKTTn subcultures	45	/
Reveal *Salmonella* test	/	56
Streaking onto selective agar plates	94	30
Reading plates	37	/
Total / negative sample	**8.9**	**5.9**
Streaking onto selective agar plates	/	30
Reading plates	/	15
Latex test	/	15
Streaking on nutritive agar plates	25	/
Confirmatory tests	150	/
Total / positive sample	**14.7**	**7.9**

For negative and positive samples, the Reveal *Salmonella* method requires less time than the reference method.

✓ *Time to results*

Negative samples	ISO 6579 method	Alternative method		
		Protocol 1	Protocol 2	Protocol 5
Preenrichment (BPW or Revive)	Day 0	Day 0	/	Day 0
Enrichment 1 (RV or RVS and MKTTn)	Day 1	Day 0	Day 0	Day 1
Enrichment 2 (M broth)	/	/	/	/
Reveal *Salmonella* test	/	Day 1	Day 1	Day 2
Streaking	Day 2	/	/	/
Reading	Day 3	/	/	/
Positive samples	**ISO 6579 method**	**Alternative method**		
		Protocol 1	Protocol 2	Protocol 5
Preenrichment (BPW or Revive)	Day 0	Day 0	/	Day 0
Enrichment 1 (RV or RVS and MKTTn)	Day 1	Day 0	Day 0	Day 1
Enrichment 2 (M broth)	/	/	/	/
Reveal *Salmonella* test	/	Day 1	Day 1	Day 2
Streaking	Day 2	/	/	/

Reading	Day 3	/	/	/
Latex test	/	Day 2	Day 2	Day 3
Confirmatory test	Day 4 to Day 6	/	/	/

Negative results are available within 1 or 2 days depending on the protocol, and confirmed positive results are available in 2 or 3 days.

4 Inter-laboratory study

These data come from previous validation study (2011, ADRIA DEVELOPPEMENT)

4.1 Study organization

Samples were sent to 15 laboratories.
The study was done with ground beef samples contaminated by *Salmonella* Typhimurium A00C060.
Samples were inoculated and sent on Monday 22 August 2011, as described below:

- 24 codified samples for *Salmonella* research with the Reveal *Salmonella spp.* method, weighted in a specific bag,
- 24 codified samples for *Salmonella* research with the reference method (ISO 6579:2002), weighted in a Stomacher bag,
- 1 sample for aerobic mesophilic flora enumeration with the ISO 4833 method,
- 1 water flask labelled “Temperature Control” with a sensor.

The collaborative study instructions were sent on July 28, 2011. The analyses were started on Wednesday 24 August 2011.

The targeted inoculation levels were:

- Level 0: 0 CFU/g,
- Level 1: 5 CFU/g,
- Level 2: 25 CFU/g.

8 samples were prepared per inoculation level, per method and per laboratory. Each laboratory received 24 samples to analyse by the reference method and 24 samples to analyse by the alternative method.

Blinded samples were placed in isothermal boxes, which contained cooling blocks, and express-shipped to the different laboratories.
A temperature control flask containing a sensor was added to the package in order to register the temperature profile during the transport, and the package delivery.
Samples were shipped in 24 h to 48 h to the involved laboratories. The temperature conditions had to stay lower or equal to 8,4°C during transport, and between 0°C – 8,4°C in the labs.

Collaborators and ADRIA Développement carried out the analyses with the alternative and reference methods at day 2.

4.2 Experimental parameters control

Before inoculation

In order to detect *Salmonella*, the 6579 method was performed on five ground beef test portions (25 g) before the inoculation. All the results were negative.

Sample stability

Sample stability was checked by inoculating the matrix at 100 CFU/g and 5 CFU/g. Enumerations were performed for the high contamination level and detection analyses were performed for the low contamination level. Triplicate samples were analysed, and the results were the following:

Table 11: Sample stability results

Day	Reference method (detection)			CFU/g (XLD)			Aerobic mesophilic flora (CFU/g)
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	
Day 0	-	+	+	100	40	60	$9.0\ 10^3$
Day 1	-	+	+	60	90	60	$3.6\ 10^3$
Day 2	+	+	-	130	70	50	$4.2\ 10^4$

No evolution was observed during storage at 4°C.

Contamination levels

The contamination levels and the confidence intervals were presents in Table 12.

Table 12: Contamination levels

Level	Samples	Theoretical target level (b/25 g)	True level (b/25 g sample)	Low limit / 25 g sample	High limit / 25 g sample
Level 0	3 / 7 / 8 / 13 / 16 / 17 / 21 / 24	/	/	/	/
Low level	1 / 6 / 10 / 11 / 14 / 18 / 22 / 23	5	2.1	1.8	2.4
High level	2 / 4 / 5 / 9 / 12 / 15 / 19 / 20	25	9.8	8.4	11.2

4.3 Results analysis

4.3.1 Expert lab results

The results are the following:

Table 13: Expert lab results

Level	Reference method	Alternative method
L0	0/8	0/8
L1	**7/8**	8/8
L2	8/8	8/8

For the low contamination level, one sample (Q10) gave a negative result with the reference method. For the alternative method, all the inoculated samples gave positive results.

4.3.2 Collaborator lab results

15 Labs participated to the study. Only 14 Labs analysed the samples. A summary of the results is given below:

Table 14: Collaborator lab results (after contamination)

Reference method					Alternative method			
Laboratory	**L0**	**L1**	**L2**		**Laboratory**	**L0**	**L1**	**L2**
A	**1/8**	**5/8**	8/8		A	0/8	**7/8**	8/8
B	**5/8**	8/8	8/8		B	0/8	8/8	8/8
C	0/8	8/8	8/8		C	0/8	8/8	8/8
E	0/8	8/8	8/8		E	0/8	8/8	8/8
F	0/8	**6/8**	8/8		F	0/8	**7/8**	8/8
G	0/8	**7/8**	8/8		G	0/8	**6/8**	8/8
H	0/8	**7/8**	8/8		H	0/8	**6/8**	8/8
I	0/8	8/8	8/8		I	0/8	8/8	8/8
J	0/8	**7/8**	8/8		J	**1/8**	8/8	8/8
K	0/8	8/8	8/8		K	0/8	**6/8**	8/8
L	0/8	8/8	8/8		L	0/8	**7/8**	8/8
M	0/8	**7/8**	8/8		M	0/8	8/8	8/8
N	0/8	8/8	8/8		N	0/8	8/8	8/8
O	0/8	8/8	8/8		O	0/8	8/8	8/8
Total	**6/112**	**103/112**	**112/112**		**Total**	**1/112**	**103/112**	**112/112**

Four Labs obtained positive results for the non-inoculated samples L0:

- Lab A: for one sample (A21) by the reference method,
- Lab B: for five samples (B7, B13, B17, B21, B24) by the reference method,
- Lab C: for one sample (C7) by the alternative method, but the presence of *Salmonella* was not confirmed for this sample,
- Lab J: for one sample (J17) by the alternative method.

It was asked to Labs A, B and J to send back the plates, in order to verify if the *Salmonella* isolates from the control samples correspond to the inoculated strain. Only the plates from Lab A are available yet.

According to the AFNOR technical rules, the results from Lab B were not taken into account, too many positive results were observed on the control samples.

One sample inoculated at the low level wasn't screened as positive with the Reveal device, while few colonies were observed with the tested confirmatory agars (Lab H).

Note that fractional recovery results were observed with the low inoculation level.

The interpretation was done with the results of 13 Labs: A, C, E, F, G, H, I, J, K, L, M, N and O.

Table 15: Collaborators lab results used for the interpretation

Reference method				Alternative method							
Lab.	L0	L1	L2	Lab.	L0		L1		L2	
					BC	AC	BC	AC	BC	AC
A	**1/8**	5/8	8/8	A	0/8	0/8	7/8	7/8	8/8	8/8
C	0/8	8/8	8/8	C	1/8	0/8	8/8	8/8	8/8	8/8
E	0/8	8/8	8/8	E	0/8	0/8	8/8	8/8	8/8	8/8
F	0/8	6/8	8/8	F	0/8	0/8	7/8	7/8	8/8	8/8
G	0/8	7/8	8/8	G	0/8	0/8	6/8	6/8	8/8	8/8
H	0/8	7/8	8/8	H	0/8	0/8	6/8	6/8	8/8	8/8
I	0/8	8/8	8/8	I	0/8	0/8	8/8	8/8	8/8	8/8
J	0/8	7/8	8/8	J	1/8	**1/8**	8/8	8/8	8/8	8/8
K	0/8	8/8	8/8	K	0/8	0/8	6/8	6/8	8/8	8/8
L	0/8	8/8	8/8	L	0/8	0/8	7/8	7/8	8/8	8/8
M	0/8	7/8	8/8	M	0/8	0/8	8/8	8/8	8/8	8/8
N	0/8	8/8	8/8	N	0/8	0/8	8/8	8/8	8/8	8/8
O	0/8	8/8	8/8	O	0/8	0/8	8/8	8/8	8/8	8/8
Total	**P_0 = 1/104**	**P_1 = 95/104**	**P_2 = 104/104**	**Total**	**P_0 = 2/104**	**CP_0 = 1/104**	**P_1 = 95/104**	**CP_1 = 95/104**	**P_2 = 104/104**	**CP_2 = 104/104**

BC: before confirmation; AC: after confirmation

4.4 Results interpretation

4.4.1 Calculation of specificity percentages (%SP) for the two methods

The percentage specificities (SP) of the reference method and of the alternative method, using the data after confirmation, based on the results of level L_0 are the following:

Table 16: Specificity calculation

Specificity for the reference method	$SP_{ref} = (1 - (P_0/N\_)) \; x \; 100\ \%$	99 %
Specificity for the alternative method	$SP_{alt} = (1 - (CP_0/N\_)) \; x \; 100\ \%$	99 %

$N\_$: number of all L_0 assays

P_0 = total number of false-positive results obtained with the blank samples before contamination

CP_0 = total number of false-positive results obtained with the blank samples

4.4.2 Calculation of the sensitivity (SE), the relative trueness (RT) and false positive ration for the alternative method

Table 17: Summary of the results

		Reference Method		Total
		+	-	
Alternative Method	+	Positive agreement PA= 192	Positive deviation PD = 8	200
	-	Negative deviation ND = 8	Negative agreement NA= 104	112
Total		200	112	312

Based on the data summarized in Table 17, the calculation of the sensitivity of the alternative method and of the reference method, as well as the relative accuracy of the alternative method and the false positive ratio are indicated in Table 18.

Table 18: Sensitivity, relative accuracy and false positive ratio

Sensitivity for the alternative method	$SE_{alt}= ((PA+PD)/PA+PD+ND)) \; x \; 100\ \%$	96.2 %
Sensitivity for the reference method	$SE_{ref}= ((PA+ND)/PA+PD+ND)) \; x \; 100\ \%$	96.2%
Relative accuracy	$RT = ((PA+NA)/N) \; x \; 100\ \%$	94.9%
False positive ratio for the alternative method	$FPR = FP/NA \; x \; 100\ \%$	0.96%

N = total of samples (NA+PA+PD+ND)

FP=false positive samples

The results after confirmation were used for the calculation

4.4.3 Interpretation of data

For an unpaired study, the calculation of (ND-PD) for the level on partial results was obtained (level L1 or level L2). The value for (ND-PD) should not be higher than the AL limit. The limit AL is defined as $[(ND\text{-}PD)_{max}]$ depending of the level where partial positive results were obtained, as described below :

$$(p+)_{ref} = \frac{P_x}{N_x}$$

Px =number of positive results with the reference method at the Level x (L1 or L2)

Nx = number of samples tested with the reference method at the Level x (L1 or L2)

$$(p+)_{alt} = \frac{CP_x}{N_x}$$

CPx =number of positive results with the alternative method at the Level x (L1 or L2)

Nx = number of samples tested with the alternative method at the Level x (L1 or L2)

$$(ND\text{-}PD)_{max} = \sqrt{3N_x \times \left((p+)_{ref} + (p+)_{alt} - 2\left((p+)_{ref} \times (p+)_{alt}\right)\right)}$$

Nx = number of samples tested with the reference method at the Level x (L1 or L2)

According to the ISO 16140-2:2016, the AL limit is not met when the observed value is higher than the AL limit.

If so, investigations should be performed (e.g. root cause analysis) to give explanation of the observed results. Based on the AL limit and with additional investigation, it is decided if the alternative method is fitted for purpose. The reasons for acceptance of the alternative method when the AL is not met should be indicated in the study report.

The calculation of the difference (ND-PD) and the comparison with the AL is indicated in the table 19:

Table 19: Comparison of the alternative method to the AL

	Level 1
Nx	104
(P+)ref	0.91
(P+)alt	0.91
AL = (ND-PD)max	7
ND-PD	0
Interpretation	ND-PD<AL

The requirements of ISO 16140-2:2016 are fulfilled as the result of (ND-PD) is below the limit AL calculated for an unpaired method.

4.4.4 Conclusion

The alternative method and reference method show equivalent performances: sensitivity, specificity and discordance.

5 General conclusion

In the sensitivity study, 4 food categories were tested: meat products, egg products, seafood products and multi-component foods or meal components products. Three protocols were used. The alternative method shows 13 positive deviations (PD) and 12 negative deviations (ND) for all the categories. The (ND – PD) and (ND + PD) values meet the acceptability limits (AL) for each and all categories.

The Relative Levels of Detection (RLOD) meet the Acceptability Limits (RLOD ≤ AL).

The inclusivity and exclusivity study showed that the Reveal *Salmonella* method is sensitive and specific but didn't detect the tested Paratyphi A strains.

It is possible to store the primary enrichment broth for 72h at 5 ± 3°C for all protocols.

The alternative method allows getting negative samples in one or two days.

The inter-laboratory study indicated that the alternative method and reference method show equivalent performances: sensitivity, specificity and discordance.

The alternative method fulfils all the EN ISO 16140-2:2016 and AFNOR technical requirements (revision 6).

The Reveal *Salmonella* method is considered equivalent to the ISO standard.

Appendix 1: Alternative method protocols Reveal® Salmonella

Protocol 1:
All processed food, except low moisture *products, cheeses, milks and egg products*

Transfer a REVIVE medium flask (ref 9705)
in a Stomacher bag
↓
Add 200 ml sterile water pre-warmed at 41.5°C ± 1°C
Mix to dissolve
↓
Add 25 g sample at room temperature
and stomach 30 seconds
↓
Incubate at 37°C ± 1°C for 5 h ± 1 h
↓
Transfer one 2 x RV flask (ref 9715) in a stomacher bag
Add 200 ml sterile water pre-warmed at 37°C ± 1°C
Mix to dissolve
Store the broths at 41.5°C until use
↓
Remove enrichment broth from incubator at 37°C
Add the 200 ml 2 x RV preheated broth at 41.5°C
in the enrichment bag (with the REVIVE medium)
Mix gently. Close the bag and incubate at 41.5°C for 18 h ± 2 h
↓
Mix the enrichment and transfer 200 µl in a Reveal Sample cup (ref 9706)
Store the enrichment for 72H at 4°C
↓
Place a Reveal test *Salmonella* in the tube and incubate
at room temperature for 15 minutes and read the test
↓
Confirmation: streak 10 µl of enrichment broth onto XLD and
Brilliance Salmonella and confirm by latex test on isolated colonies
and the tests described in the ISO method

Protocol 2:
All non-processed food, poultry rinses,
except milks, cheeses and egg products

Transfer a 1 x RV flask in a stomacher bag

↓

Add 200 ml sterile water pre-warmed at 41.5°C ± 1°C
Mix to dissolve
Wait for stabilization at 41.5°C before adding the sample

↓

Add 25 g sample at room temperature
and stomach 30 seconds

↓

Incubate at 41.5°C ± 1°C for 22 h ± 2 h

↓

Mix the bag and transfer 200 µl in a Reveal Sample cup

↓

Place a Reveal *Salmonella* test in the tube and incubate
at room temperature for 15 minutes
Read the test

↓

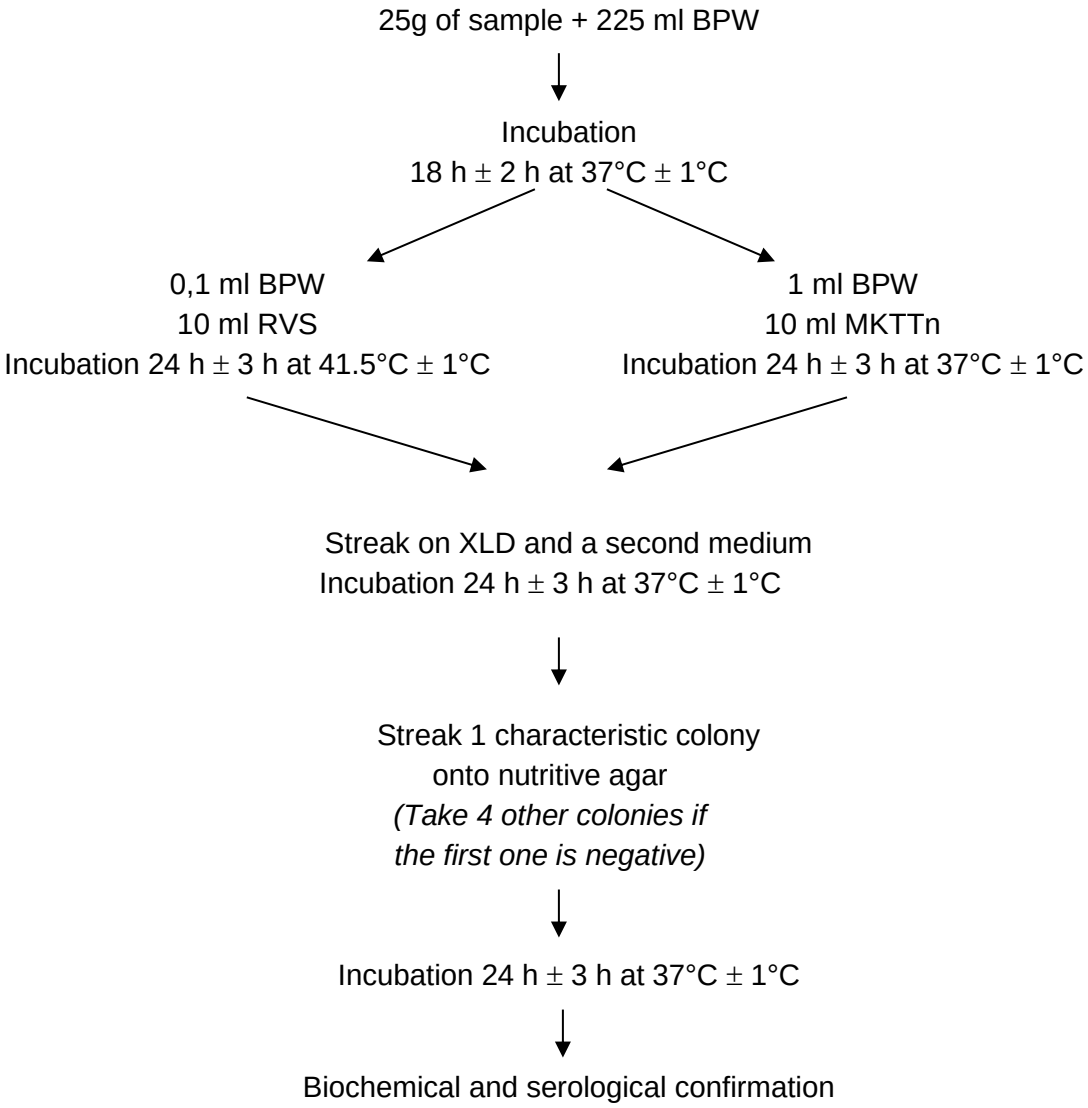
Confirmation: streak 10 µl of enrichment broth onto XLD and
Brilliance Salmonella and confirm by latex test on isolated colonies
and the tests described in the ISO method

Protocol 5:
Egg products

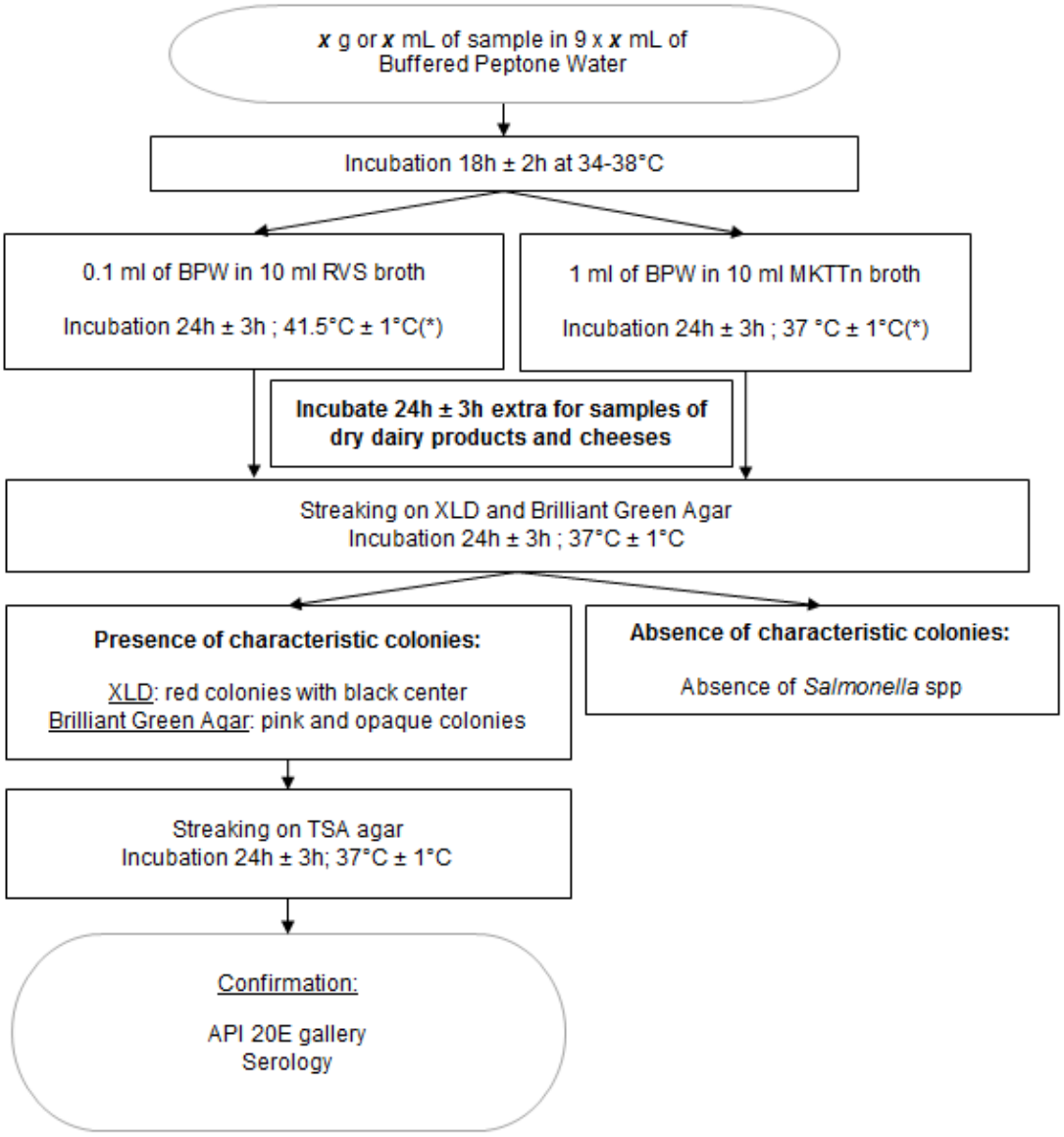
25 g + 225 ml BPW
↓
18 h ± 2 h at 37°C ± 1°C
↓
Transfer 0.1 ml of BPW into 10 ml RV broth
↓
Incubate at 41.5°C ± 1°C for 24 h ± 2 h
↓
Mix the bag and transfer 200 µl in a Reveal Sample Cup
↓
Reveal *Salmonella* Test
↓
Confirmation by streaking on XLD and *Brilliance* Salmonella
Confirmation according to standard procedures or latex test

Appendix 2: Reference method protocols

EN ISO 6579: 2002: Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp.



EN ISO 6579-1:2017: Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella*- Part 1: Detection of *Salmonella* spp.[Δ]



(*): except for "Low moisture dairy product and cheese": Incubation 48h ± 3h; 37 °C ± 1°C

[Δ] Analyses performed according to the COFRAC accreditation

Appendix 3: Artificial contamination (raw data)

The results of the samples tested during the renewal study (2020) are highlighted in grey in the table

Bold typing: artificial contaminations

Sample n°	Product	Artificial contaminations (spiking protocol)					Global result
		Strain	Origin	Injury protocol	Injury efficiency	Inoculation level/25g	
35	**Tarama**	Salmonella Agona F118	Mussels	HT56°c 15min	>3,14	14-8-7-7-3(7,8)	+
36	**Tuna rillettes**	Salmonella Agona F118	Mussels	HT56°c 15min	>3,14	14-8-7-7-3(7,8)	+
37	**Surimi**	Salmonella Agona F118	Mussels	HT56°c 15min	>3,14	14-8-7-7-3(7,8)	+
38	**Cooked coley**	Salmonella Derby F81	Mussels	HT56°c 15min	2,02	1-1-0-0-3(1,0)	-
39	**Minced fish**	Salmonella Derby F81	Mussels	HT56°c 15min	2,02	1-1-0-0-3(1,0)	+
40	**Minced salmon**	Salmonella Derby F81	Mussels	HT56°c 15min	2,02	1-1-0-0-3(1,0)	+
89	**Shrimps**	Salmonella Hadar F106	Mussels	HT56°c 15min	>2,11	3-1-0-3-1(1,6)	+
90	**Crayfishes tails**	Salmonella Hadar F106	Mussels	HT56°c 15min	>2,11	3-1-0-3-1(1,6)	+
91	**Crab rillettes**	Salmonella Hadar F106	Mussels	HT56°c 15min	>2,11	3-1-0-3-1(1,6)	+
92	**Salmon terrine**	Salmonella Senftenberg Ad355	Shell fish	HT56°c 15min	4,3	3-6-2-1-0(2,4)	+
93	**Scallops terrine**	Salmonella Senftenberg Ad355	Shell fish	HT56°c 15min	4,3	3-6-2-1-0(2,4)	+
94	**Cooked salmon**	Salmonella Senftenberg Ad355	Shell fish	HT56°c 15min	4,3	3-6-2-1-0(2,4)	+
460	**Mix salad**	Salmonella Virchow F276	Curry	HT 56°c 15min	>1,76	6-4-3-7-5(5,0)	+
461	**Cooked tomatoes**	Salmonella Virchow F276	Curry	HT 56°c 15min	>1,76	6-4-3-7-5(5,0)	+
539	**Marinated mackuerel**	Salmonella Derby F81	Mussels	23 days 10% NaCl	0,58	12-3-5-4-3(5,4)	+
540	**Marinated salmon**	Salmonella Braendenburg Ad351	Seafood cocktail	108 days 10% NaCl	1,82	8-5-10-9-4(7,2)	+
2067	**Ready to eat food**	Salmonalle Infantis 14	Egg product	TT 56°C 15 mn	1,99	0	+
2068	**Pie with vegetables**	Salmonalle Infantis 14	Egg product	TT 56°C 15 mn	1,99	0	+
2069	**Pie with cheee**	Salmonella Enteritidis 465	Egg product	TT 56°C 15 mn	1,11	4-6-6-7-6 (5,8)	+
2070	**Egg based cream**	Salmonella Enteritidis 465	Egg product	TT 56°C 15 mn	1,11	4-6-6-7-6 (5,8)	+

Sample n°	Product	Artificial contaminations (spiking protocol)					Global result
		Strain	Origin	Injury protocol	Injury efficiency	Inoculation level/25g	
2071	Baked custard	Salmonella Typhimurium Ad1484	Egg product	TT 56°C 15 mn	1,7	0-0-0-3-3 (1,2)	+
2072	Dessert(Clafoutis)	Salmonella Typhimurium Ad1484	Egg product	TT 56°C 15 mn	1,7	0-0-0-3-3 (1,2)	+
2073	Pastry	Salmonella Typhimurium JES 411	Egg product	TT 56°C 15 mn	0,96	6-3-6-7-3 (5)	+
2074	Cream with caramel	Salmonella Typhimurium JES 411	Egg product	TT 56°C 15 mn	0,96	6-3-6-7-3 (5)	+
2279	White egg powder	Salmonella Enteritidis 10	White egg powder	HT 56°c 15min	1,48	0-0-0-0-0(0,0)	+
2280	White egg powder	Salmonella Enteritidis 10	White egg powder	HT 56°c 15min	1,48	0-0-0-0-0(0,0)	-
2281	Whole egg powder	Salmonella Enteritidis 10	White egg powder	HT 56°c 15min	1,48	0-0-0-0-0(0,0)	+
2282	Whole egg powder	Salmonella Enteritidis 10	White egg powder	HT 56°c 15min	1,48	0-0-0-0-0(0,0)	+
2283	White egg powder	Salmonella Livingstone E1	White egg powder	HT 56°c 15min	>1,69	0-1-2-3-1(1,4)	+
2284	Whole egg powder	Salmonella Livingstone E1	White egg powder	HT 56°c 15min	>1,69	0-1-2-3-1(1,4)	-
2285	Pasteurised white egg product	Salmonella Mbandaka 81	Whole egg product	HT 56°c 15min	>1,53	0-0-0-0-0(0,0)	+
2286	Pasteurised white egg product	Salmonella Typhimurium Ad1484	Whole egg product	HT 56°c 15min	>1,74	0-1-1-0-0(0,4)	+
2287	Pasteurised white egg product	Salmonella Enteritidis 657	Whole egg product	HT 56°c 15min	1,85	0-1-2-3-1(1,4)	+
2288	Pasteurised whole egg product	Salmonella Mbandaka 81	Whole egg product	HT 56°c 15min	>1,53	0-0-0-0-0(0,0)	+
2289	Pasteurised whole egg product	Salmonella Typhimurium Ad1484	Whole egg product	HT 56°c 15min	>1,74	0-1-1-0-0(0,4)	+
2290	White egg product	Salmonella Enteritidis 657	Whole egg product	HT 56°c 15min	1,85	0-1-2-3-1(1,4)	+
3604	Ready to eat food	Salmonella Bredeney 396	Ground beef	HT56°c 10min	0,80	6-6-3-3-1(3,8)	+
3605	Bacon burger	Salmonella Bredeney 396	Ground beef	HT56°c 10min	0,80	6-6-3-3-1(3,8)	+
3606	Ready to eat food	Salmonella Bredeney 396	Ground beef	HT56°c 10min	0,80	6-6-3-3-1(3,8)	+
3607	Cappucino	Salmonella Meleagridis 505	Raw milk	HT56°c 10min	1,13	2-4-4-1-1(2,4)	+
3608	Pastry(Forêt noire)	Salmonella Meleagridis 505	Raw milk	HT56°c 10min	1,13	2-4-4-1-1(2,4)	+
3609	Pastry(cerisier)	Salmonella Meleagridis 505	Raw milk	HT56°c 10min	1,13	2-4-4-1-1(2,4)	+
3610	Ready to eat food	SalmonellaTyphimurium 305	Paëlla	HT56°c 10min	0,55	9-7-5-3-2(5,2)	+
3611	Salmon with links(ready to eat food)	Salmonella Typhimurium 305	Paëlla	HT56°c 10min	0,55	9-7-5-3-2(5,2)	+
3612	Paella	SalmonellaTyphimurium 305	Paëlla	HT56°c 10min	0,55	9-7-5-3-2(5,2)	+
3613	Salmon with links(ready to eat food)	Salmonella Brandenburg Ad351	Seafood cocktail	HT56°c 10min	1,50	2-2-2-5-1(2,4)	+

Sample n°	Product	Artificial contaminations (spiking protocol)					Global result
		Strain	Origin	Injury protocol	Injury efficiency	Inoculation level/25g	
3614	Salmon and brocolis pie	Salmonella Brandenburg Ad351	Seafood cocktail	HT56°c 10min	1,50	2-2-2-5-1(2,4)	+
3615	Salmon terrine	Salmonella Brandenburg Ad351	Seafood cocktail	HT56°c 10min	1,50	2-2-2-5-1(2,4)	+
3616	Ready to eat salad(Piémontaise)	Salmonella London 326	Ham	HT56°c 10min	1,03	6-4-3-6-6(5,0)	+
3617	Pasta with cheese and ham	Salmonella London 326	Ham	HT56°c 10min	1,03	6-4-3-6-6(5,0)	+
3618	Sandwich(ham, egg, tomato, salad)	Salmonella London 326	Ham	HT56°c 10min	1,03	6-4-3-6-6(5,0)	+
3619	Sandwich (ham, egg, tomato)	Salmonella London 326	Ham	HT56°c 10min	1,03	6-4-3-6-6(5,0)	+
3620	Ready to eat salad(Piémontaise)	Salmonella Mbandaka Ad 914	Mayonese	HT56°c 10min	1,33	3-4-6-2-0(3,0)	+
3621	Vegetables mix	Salmonella Mbandaka Ad 914	Mayonese	HT56°c 10min	1,33	3-4-6-2-0(3,0)	+
3622	Pasta with surimi	Salmonella Mbandaka Ad 914	Mayonese	HT56°c 10min	1,33	3-4-6-2-0(3,0)	+
3623	Sandwich	Salmonella Mbandaka Ad 914	Mayonese	HT56°c 10min	1,33	3-4-6-2-0(3,0)	+
3659	Ready to eat meal(pork with vegetables)	Salmonella Infantis 12	Ready to eat (duck liver)	HT56°c 10min	1,86	2-3-3-2-7(3,4)	+
3660	Ready to eat meal(gratin Dauphinois))	Salmonella Infantis 12	Ready to eat (duck liver)	HT56°c 10min	1,86	2-3-3-2-7(3,4)	+
3661	Ready to eat meal(Duck parmentier)	Salmonella Infantis 12	Ready to eat (duck liver)	HT56°c 10min	1,86	2-3-3-2-7(3,4)	+
3662	Moussaka with poultry	Salmonella Infantis 12	Ready to eat (duck liver)	HT56°c 10min	1,86	2-3-3-2-7(3,4)	+
3663	Cappucino	Salmonella Typhimurium Ad 1333	Tiramisu	HT56°c 10min	1,52	7-8-4-6-3(5,6)	+
3664	Pastry(Forêt noire)	Salmonella Typhimurium Ad 1333	Tiramisu	HT56°c 10min	1,52	7-8-4-6-3(5,6)	+
3665	Pastry	Salmonella Typhimurium Ad 1333	Tiramisu	HT56°c 10min	1,52	7-8-4-6-3(5,6)	+
3666	Ready to eat meal(pork)	Salmonella Cremieu 230	Meat	HT56°c 10min	1,29	3-3-3-2-4(3,0)	+
3667	Ready to eat meal(gratin Dauphinois))	Salmonella Cremieu 230	Meat	HT56°c 10min	1,29	3-3-3-2-4(3,0)	+
3668	Ready to eat meal(duck)	Salmonella Cremieu 230	Meat	HT56°c 10min	1,29	3-3-3-2-4(3,0)	+
3669	Moussaka	Salmonella Cremieu 230	Meat	HT56°c 10min	1,29	3-3-3-2-4(3,0)	+
3670	Salmon terrine	Salmonella Indiana 2	Fish meal	HT56°c 10min	1,43	3-5-2-1-10(4,2)	+
3671	Prawns terrine	Salmonella Indiana 2	Fish meal	HT56°c 10min	1,43	3-5-2-1-10(4,2)	+
3672	Scallops terrine	Salmonella Indiana 2	Fish meal	HT56°c 10min	1,43	3-5-2-1-10(4,2)	+
3673	Ready to eat meal(pork and rice)	Salmonella Typhimurium Ad 1334	Ready to eat	HT56°c 10min	1,12	4-4-5-7-2(4,4)	+
3674	Prawn crackers	Salmonella Typhimurium Ad 1334	Ready to eat	HT56°c 10min	1,12	4-4-5-7-2(4,4)	+

Sample n°	Product	Artificial contaminations (spiking protocol)					Global result
		Strain	Origin	Injury protocol	Injury efficiency	Inoculation level/25g	
3675	Pork samoussa	Salmonella Typhimurium Ad 1334	Ready to eat	HT56°c 10min	1,12	4-4-5-7-2(4,4)	+
3676	Cod fritters	Salmonella Typhimurium Ad 1334	Ready to eat	HT56°c 10min	1,12	4-4-5-7-2(4,4)	+
3677	Chitterlings	Salmonella Typhimurium Ad 1334	Ready to eat	HT56°c 10min	1,42	1-1-2-3-1(1,6)	+
3678	Delicatessen	Salmonella Typhimurium 528	Pickling brine	HT56°c 10min	1,42	1-1-2-3-1(1,6)	+
3679	Smoked salmon	Salmonella Typhimurium 528	Pickling brine	HT56°c 10min	1,42	1-1-2-3-1(1,6)	+
3680	Smoked trout	Salmonella Typhimurium 528	Pickling brine	HT56°c 10min	1,42	1-1-2-3-1(1,6)	+
3825	Scallops terrine	Salmonella London A00P085	Asian product	HT 56°c 15min	>1,90	5-14-8-8-5(8,0)	+
3826	Shell fish salad	Salmonella London A00P085	Asian product	HT 56°c 15min	>1,90	5-14-8-8-5(8,0)	+
3830	Surimi/smoked salmon mix	Salmonella London A00P085	Asian product	HT 56°c 15min	>1,90	5-14-8-8-5(8,0)	+
4682	Cucumber-salmon mix	Salmonella Saintpaul F31	Pilchard fillets	HT56°c 15 min	2,08	4-5-2-3-3(2,8)	+
4683	Tomatoes-tuna mix	Salmonella Saintpaul F31	Pilchard fillets	HT56°c 15 min	2,08	4-5-2-3-3(2,8)	-
4687	Tuna with tomatoes	Salmonella Braendenburg Ad351	Seafood cocktail	HT56°c 15 min	1,89	1-2-3-3-2(2,2)	+
A1	Plaice	Salmonella Abortusequi	NCTC 5727	HT56°C 10min	1.32	2-2-9-3-4 (4)	+
A2	Floating island	Salmonella Abortusequi	NCTC 5727	HT56°C 10min	1.32	2-2-9-3-4 (4)	+
A6	Breaded poultry	Salmonella Abortusovis	NCTC 10241	HT56°C 10min	1.10	0-0-1-5-3 (1.8)	+
A7	Chouquette	Salmonella Abortusovis	NCTC 10241	HT56°C 10min	1.10	0-0-1-5-3 (1.8)	+
A9	Breaded poultry	Salmonella Bareilly	NCTC 5745	HT56°C 10min	1.44	3-3-3-1-4 (3)	+
A10	Chouquette	Salmonella Bareilly	NCTC 5745	HT56°C 10min	1.44	3-3-3-1-4 (3)	+
A11	Custard	Salmonella Chester	NCTC 5718	HT56°C 10min	1.28	3-2-3-4-1 (2.6)	+
A13	Custard	Salmonella Javaiana	NCTC 6495	HT56°C 10min	1.54	7-9-9-3-3 (6.2)	+
A14	Breaded fish	Salmonella Muenchen	NCTC 5755	HT56°C 10min	1.46	3-2-3-4-1 (2.6)	+
A15	Plaice	Salmonella Muenster	NCTC 5780	HT56°C 10min	1.47	7-9-9-3-3 (6.2)	+
A16	Floating island	Salmonella Muenster	NCTC 5780	HT56°C 10min	1.47	7-9-9-3-3 (6.2)	+
A17	Salmon	Salmonella Oranienburg	NCTC 5743	HT56°C 10min	1.44	0-0-1-5-3 (1.8)	+
A18	Mayonnaise	Salmonella Oranienburg	NCTC 5743	HT56°C 10min	1.44	0-0-1-5-3 (1.8)	+
A19	Bream	Salmonella Orion	NCTC 7370	HT56°C 10min	1.46	0-5-3-2-3 (2.6)	+

Sample n°	Product	Artificial contaminations (spiking protocol)					Global result
		Strain	Origin	Injury protocol	Injury efficiency	Inoculation level/25g	
A20	Floating island	Salmonella Orion	NCTC 7370	HT56°C 10min	1.46	0-5-3-2-3 (2.6)	+
A21	Salmon	Salmonella Schwarzengrund	NCTC 6759	HT56°C 10min	1.55	4-9-7-6-8 (6.8)	+
A24	Mayonnaise	Salmonella Schwarzengrund	NCTC 6759	HT56°C 10min	1.55	0-0-1-5-3 (1.8)	+
A28	Floating island	Salmonella Singapore	NCTC 7376	HT56°C 10min	1.55	0-0-1-5-3 (1.8)	+
A29	Custard	Salmonella Stanley	NCTC 92	HT56°C 10min	1.47	0-0-1-5-3 (1.8)	+
A30	Plaice	Salmonella Weltreveden	NCTC 6534	HT56°C 10min	1.22	0-0-1-5-3 (1.8)	+
A31	Mayonnaise	Salmonella Weltreveden	NCTC 6534	HT56°C 10min	1.22	0-0-1-5-3 (1.8)	+
A57	White egg powder	Salmonella Chester	NCTC 5718	HT56°C 10min	1.28	3-2-3-4-1 (2.6)	+
A59	Egg yolk powder	Salmonella Javaiana	NCTC 6495	HT56°C 10min	1.54	7-9-9-3-3 (6.2)	+
A60	Whole egg powder	Salmonella Muenchen	NCTC 5755	HT56°C 10min	1.46	3-2-3-4-1 (2.6)	+
A61	Egg yolk powder	Salmonella Stanley	NCTC 92	HT56°C 10min	1.47	0-0-1-5-3 (1.8)	+
A63	Whole egg powder	Salmonella Abortusovis	NCTC 10241	HT56°C 10min	1.32	2-2-9-3-4 (4)	+
A79	Smoked salmon	Salmonella Stanley	NCTC 92	HT56°C 10min	1.55	0-8-5-1-1 (3)	+

Appendix 4: Sensitivity study raw data (Initial validation, 2011 and renewal study, 2020)

The samples tested during the renewal study (2020) are highlighted in grey in the table

+/-: doubtful colonies

Bold typing: artificial contamination | NC: non characteristic colonies on nutrient agar | ox: oxidase test | ni: non isolated colonies

st : plate without any colony | M : typical colony in majority compared to annex flora | p : pure typical colony | m : typical colony in minority compared to annex flora | wr : weak reaction

MEAT PRODUCTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test									Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			XLD			Brilliance salmonella								
										Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
3624	Sausage	1	-	-	-	-	-	-	-	-	/	/	/	/	/	-	**NA**	/			
3625	Sausages	1	+	+	+	+	+	+	+very wr	+ni/+	+	+	+ni/+	+		+	**PA**	+ wr	+	+	**PA**
3626	Merguez	1	-	-	-	-	-	-	+very wr	-	/	/	/	/	/	-(PPNC)	**PPNA**	+ wr	-	-(PPNC)	**PPNA**
3627	Delicatessen	1	-	-	-	-	-	-	-	-	/	/	/	/	/	-	**NA**	/			
3677	**Chitterlings**	1	+	+	+	+	+	+	+ very wr	+ni/+	+	+	+m	+		+	**PA**	+ very wr	+	+	**PA**
3678	**Delicatessen**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3687	Bacon	1	-	-	-	-	-	-	-	-			-			-	**NA**				
3690	Salted caul	1	-	-	-	-	-	-	+/-(very wr)	+ni/+	-	E.coli	-			-(PPNC)	**PPNA**				
3698	Raw sausages	1	-	-	-	-	-	-	-	-			-			-	**NA**				
3699	Raw sausages	1	-	-	-	-	-	-	-	-			-			-	**NA**				
3811	Ground chicken meat	2	-	-	+(Ox+)	-	+(Ox+)	-	-	-			-			-	**NA**				
4242	Marinated chicken fillets	1	+	+	+	+	+	+(salmonella Indiana)	+(wr)	-(X5)			-(X5)			-(PPNC)	**PPND**	+(wr)	-	-	**PPND**
4245	Sausages	1	-	-	-	-	-	-	-	-			-			-	**NA**				
4248	Sausages	1	-	-	-	-	-	-	-	-			-			-	**NA**				
4253	Poultry	2	+	+ni/+	-	-	-	+	+(wr)	+	+	+	+	+		+	**PA**	+	+	+	**PA**
4254	Ground beef	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4255	Poultry	2	-	-	-	+/- (Citrobactyer freundii)	-	-	-	-			-			-	**NA**				
4404	Mechanically deboned poultry meat	2	+	+	+/-	+ni/-	-	-	+(wr)	-(X5)			+(X5)	+	+	+	**PD**	+(wr)	+	+	**PD**
4541	Pork minced meat	2	+	-	-	-	-	-	+	+	+	+	+	+		+	**PD**	+	+	+	**PD**
4542	Pork minced meat	2	+	-	-	-	-	-	+	+	+	+	+	+		+	**PD**	+	+	+	**PD**
4543	Pork minced meat	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4544	Pork minced meat	2	-	-	-	-	-	-	-	-			-			-	**NA**				

MEAT PRODUCTS

Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test									Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
4545	Pork minced meat	2	-	-	-	-	-	-	-	-			-			-	NA				
4563	Raw sausage	1	+	+ni/+	-	+	+	+	-	-			-			-	ND	-	-	-	ND
4663	Stuffing	1	-	-	+ni/+(ox+)	+ni/+(Citrobacter braakii)	-	-	-	-			-			-	NA	-	-	-	NA
5167	Turkey meat	2	+	+	+	+	+	+	+(wr)	+	+	+	+	+		+	PA	+(wr)	+	+	PA
5168	Chicken meat	2	+	-	-	+	+	+	+(wr)	+	+	+	+	+	+	+	PA	+(wr)	+	+	PA
5169	Turkey meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5170	Ground chicken meat	2	+	+	+	+	+/-	+	+	-			+	+	+	+	PA	+	+	+	PA
5171	Hare meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5172	Chicken hearts	2	+	+ni/+(Citrobacter youngae)	-	+ni/+(Citrobacter youngae)	-	-	+	+	+	+	+	+		+	PD	+	+	+	PD
5173	Pork ground meat	2	+	+	+	+	+	+	+(wr)	+	+	+	+	+		+	PA	+(very wr)	+	+	PA
5174	Ground white meat	2	+	+	-	+	+	+	+	-			+	+	+	+	PA	+	+	+	PA
5175	Turkey meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+(wr)	+	+	PA
5176	Red meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5177	Chicken meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5178	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5179	Roulade	2	+	+	+	+	+	+	-	-			-			-	ND	-	-	-	ND
5180	Turkey meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5181	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5182	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5183	Ground chicken meat	2	+	+(Citrobacter braakii)	+(ox+)	+(Citrobacter braakii)	+/-(ox+)	-	+	+	+		+	+	+	+	PD	+	+	+	PD
5184	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				0
5185	Pork kidneys	2	-	+/-	-	-	-	-	-	+/- 1col	-	E.coli	-			-	NA	-	-	-	NA
5186	Pork meat	2	-	+ni/-	-	-	-	-	-	-			-			-	NA	-	-	-	NA
5187	Beef meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5188	Red meat wihtout skin	2	-	-	-	-	-	-	-	-			-			-	NA				
5189	Pork meat	2	-	+ni/	-	-	-	-	-	-			-			-	NA	-	-	-	NA
5190	VSM	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5206	Pork minced meat	2	+	-	-	-	-	-	+	+	+	+	+	+		+	PD	+	+	+	PD
5207	Chicken white meat	2	+	+	+/-	+	+	+	+(wr)	+3col	+	+	+	+		+	PA	+	+	+	PA
5208	Fresh porkmeat	2	+	+	+	+	+	+	-	-			-			-	ND	-	-	-	ND
5209	Pork throat	2	-	-	-	-	-	-	-	-			-			-	NA				
5210	Chicken meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5211	Pork meat	2	-	-	+(ox+)	-	-	-	-	-			-			-	NA	-	-	-	NA
5212	Ground chicken meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA

MEAT PRODUCTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test									Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
5213	Raw pork meat	2	+	+	+	+	+	+	-	-			-			-	ND	-	-	-	ND
5214	Pork meat and ribs	2	+	+	-	+	+/-	+	-	-			-			-	ND	-	-	-	ND
5215	Hen meat	2	+	-	-	-	-	-	+	+	+	+	+	+		+	PD	+	+	+	PD
5216	Pork meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5217	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA	-	-	-	NA
5218	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5219	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA				
5220	Pork meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5221	Pork meat	2	-	-	-	-	-	-	-	-			-			-	NA	-	-	-	NA
5222	Pork meat	2	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5223	Ground chicken meat	2	+	+	+/-	+/-1col	+	+	+(wr)	+	+	+	+	+		+	PA	+(wr)	+	+	PA
5224	VSM	2	+	+	+/-	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
5225	Pork kidneys	2	-	-	-	-	-	-	-	-			-			-	NA				
5226	Pork	2	-	-	-	-	-	-	-	-			-			-	NA	-	-	-	NA
5227	Chicken skin	2	+	+/-	+	+	+/-	+	-	-			-			-	ND	-	-	-	ND
5228	Turkey VSM	2	-	-	+/-	-	+	-	-	-			-			-	NA	-	-	-	NA
5229	Ground pork meat	2	+	+/-	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
A6	**Breaded poultry**	**1**	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
A9	**Breaded poultry**	**1**	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
A26	Breaded poultry	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA
A40	Breaded poultry	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA
A82	Raw chicken breast	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA
A83	Raw turkey breast	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA
A84	Raw chicken leg	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA
A85	Raw turkey leg	1	-	-	-	-	-	-	-	-	-	/	-	/		-	NA	-	-	-	NA

EGG PRODUCTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test									Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
1638	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1639	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1640	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1648	Mayonnaise	5	-	+ni/-	-	-	-	-	-	+ni/-	/	/	-	/		-	NA				
1649	Mayonnaise	5	-	-	-	+ni/+(Citrobacter youngae)	-	-	-	-	/	/	-	/		-	NA				
2023	Ile flottante	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2024	English cream	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2026	Whole egg powder	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2027	White egg powder	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2083	Vanilla cream	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2279	**White egg powder**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2280	**White egg powder**	5	-	-st	-st	-st	-st	-	-	-st	/	/	-st	/		-	NA				
2281	**Whole egg powder**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2282	**Whole egg powder**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2283	**White egg powder**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2284	**Whole egg powder**	5	-	-st	-st	-st	-st	-	-	-st	/	/	-st	/		-	NA				
2285	**Pasteurised white egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2286	**Pasteurised white egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2287	**Pasteurised white egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2288	**Pasteurised whole egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2289	**Pasteurised whole egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2290	**White egg product**	5	+	+p	+p	+p	+p	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
2291	White egg powder	5	-	-st	-st	-st	-st	-	-	-st	/	/	-st	/		-	NA				
2292	Whole egg powder	5	-	-st	-st	-st	-st	-	-	-st	/	/	-st	/		-	NA				
A2	**Floating island**	**5**	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
A5	Floating island	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				

EGG PRODUCTS																							
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test										Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement		Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella									
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests							
A7	Chouquette	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A10	Chouquette	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A11	Custard	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A13	Custard	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A16	Floating island	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A18	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A20	Floating island	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A22	Whole egg powder	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A23	Egg yolk powder	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A24	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A28	Floating island	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A29	Custard	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A31	Mayonnaise	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A35	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A37	Chouquette	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A41	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A43	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A44	Chouquette	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A46	Chouquette	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A52	Chouquette	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A55	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A57	White egg powder	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A59	Egg yolk powder	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A60	Whole egg powder	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A61	Egg yolk powder	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A62	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A63	Whole egg powder	5	+	+	+	+	+	+	+	+	+	+	+	+	+		+	PA		+	+	+	PA
A64	White egg powder	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A67	Egg yolk powder	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A68	Custard	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A69	Floating island	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A71	Mayonnaise	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A80	Mayonnaise	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A81	Mayonnaise	5	-	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					

SEAFOOD PRODUCTS																					
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				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
35	**Tarama**	1	+	-	-	-	-	-	+	+	+	+	+	+	+	+	PD	+	+	+	PD
36	**Tuna rillettes**	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PA	+	+	+	PA
37	**Surimi**	1	+	+ni+	-	-	+ni+	+	-	-			-			-	ND	-	-	-	ND
38	**Cooked coley**	1	-	-	+	-	-	-	-	-			-			-	NA				
39	**Minced fish**	1	+	+	+	+	+	+	-	-			-			-	ND	-	-	-	ND
40	**Minced salmon**	1	+	+	+	+	+	+	+(wr)	+	+	+	+	+	+	+	PA	+	+	+	PA
89	**Shrimps**	1	+	+	+	+	+	+	-	+	+	+	+	+	+	+	PA	+(very wr)	+	+	PA
90	**Crayfishes tails**	1	+	+	+	+	+	+	-	+	+	+	+	+	+	+	PA	+(wr)	+	+	PA
91	**Crab rillettes**	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PA	+	+	+	PA
92	**Salmon terrine**	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PA	+	+	+	PA
93	**Scallops terrine**	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PA	+	+	+	PA
94	**Cooked salmon**	1	+	+	+	+	+	+	+(very wr)	+1col	+	+	+1col	+	+	+	PA	+(very wr)	+	+	PA
337	White raw fish	2	-	-	-	-	-	-	-	-			-			-	NA				
382	Fish parmentier	1	-	-	-	-	-	-	-	-			-			-	NA				
383	Tuna salad	1	-	-	-	-	-	-	-	-			-			-	NA				
384	Smoked trout	1	-	-	-	-	-	-	-	-			-			-	NA				
385	Smoked salmon	1	-	-	+/- (Morganella morganii)	-	-	-	-	-			-			-	NA	-	-	-	NA
386	Smoked herring fillets	1	-	-	-	-	-	-	-	-			-			-	NA				
539	**Marinated mackuerel**	1	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
540	**Marinated salmon**	1	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
543	Smoked herring fillets	1	-	-	-	-	-	-	-	-						-	NA				
544	Cod fillets	1	-	-	-	-	-	-	-	-						-	NA				
545	Piece of cod	1	-	-	-	-	-	-	-	-						-	NA				
2079	Ready to eat food	1	+	+	-	-	-	+	-	+7col	+	+	-	/		-	ND	-	/	-	ND
3610	**Ready to eat food**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
3611	**Salmon with links(ready to eat food)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
3613	**Salmon with links(ready to eat food)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA
3615	**Salmon terrine**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA	+	+	+	PA

SEAFOOD PRODUCTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test									Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
3622	**Pasta with surimi**	1	+	+	+	+	+	+	+	+M	+	+	+p	+		+	**PA**	+	+	+	**PA**
3670	**Salmon terrine**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3671	**Prawns terrine**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3672	**Scallops terrine**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3674	**Prawn crackers**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3676	**Cod fritters**	1	+	+	+	-	+	+	+ very wr	+ni/+	+	+	+p	+		+	**PA**	+ very wr	+	+	**PA**
3679	**Smoked salmon**	1	+	+	+	+	+	+	+ very wr	+ni/+	+	+	+m	+		+	**PA**	+ very wr	+	+	**PA**
3680	**Smoked trout**	1	+	-	-	+	+	+	+ very wr	+ni/+	+	+	+m	+		+	**PA**	+ very wr	+	+	**PA**
3825	**Scallops terrine**	1	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
3826	**Shell fish salad**	1	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
3830	**Surimi/smoked salmon mix**	1	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
4256	Fish	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4257	Tuna	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4258	Salmon	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4259	Seafood	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4682	**Cucumber-salmon mix**	2	+	+	+	-	-	+	-	-			-			-	**ND**	-	-	-	**ND**
4683	**Tomatoes-tuna mix**	2	-	-	-	-	-	-	-	-			-			-	**NA**				
4687	**Tuna with tomatoes**	2	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A1	**Plaice**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A8	Plaice	2	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A14	**Breaded fish**	**1**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A15	**Plaice**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A17	**Salmon**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A19	**Bream**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A21	**Salmon**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A27	Salmon	2	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A30	**Plaice**	**2**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A33	Cod brandade	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A36	Mackerel fillet	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A39	Cod brandade	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A42	Breaded fish	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				

SEAFOOD PRODUCTS																					
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				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
A45	Cod brandade	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A47	Cod brandade	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A51	Salmon	2	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A53	Plaice	2	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A56	Breaded fish	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A73	Mackerel fillet	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
A79	**Smoked salmon**	**1**	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
A86	**Marinated salmon**	**1**	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
A87	**Marinated salmon**	**1**	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
A88	**Salmon terrine**	**1**	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
A89	**Salmon terrine**	**1**	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				

MULTI-COMPONENT FOODS OR MEAL COMPONENTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test										Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation							Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella									
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests							
368	Marrow	2	-	-	+(Ox+)	-	+(Ox+)	-	-	-			-			-	NA	-	-	-	NA
369	Endive	2	-	-	-	-	-	-	-	-			-			-	NA				
370	Carrots	2	-	-	-	-	-	-	-	-			-			-	NA				
371	White mushrooms	2	-	+/- (E.cloacae)	+(Ox+)	-	+1col(ox+)	-	-	-			-			-	NA	+(wr)	-	- (PPNC)	PPNA
458	Salad	2	-	-	-	-	-	-	-	-			-			-	NA				
460	**Mix salad**	1	+	+	+	+	+	+(salmonella non agglutinable)	-	-			-			-	ND	-	-	-	ND
461	**Cooked tomatoes**	1	+	+	+	+	+	+	+(wr)	+	+	+	+	+		+	PA	+(very wr)	+	+	PA
541	Brocolis and salmon pie	1	-	-	-	-	-	-	-	-						-	NA				
542	Cheese pie	1	-	-	-	-	-	-	-	-						-	NA				
546	Red salad	1	-	-	-	-	-	-	-	-						-	NA				
1632	**Baked custard**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1633	**Pastry**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1634	**Pastry(lemon pie)**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1635	**Quiche(onions and bacon)**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1636	**Quiche Lorraine**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
1637	**Chee pie**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2018	Quiche (Onions and bacon)	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2019	Quiche Lorraine	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2020	Dessert(Clafoutis)	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2021	Pastry	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2022	Pastry	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2025	Quiche(Brocolis salmon)	5	-	-	-	-	-	-	-	-	/	/	-	/		-	NA				
2067	**Ready to eat food**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2068	**Pie with vegetables**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2069	**Pie with cheee**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2070	**Egg based cream**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2071	**Baked custard**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2072	**Dessert(Clafoutis)**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA
2073	**Pastry**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	PA	+	+	+	PA

MULTI-COMPONENT FOODS OR MEAL COMPONENTS																					
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				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement	Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella								
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests						
2074	**Cream with caramel**	5	+	+	+	+	+	+	+	+	+	+	+	+		+	**PA**	+	+	+	**PA**
2077	Links pie	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
2078	Spinash and goat cheese pie	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
2080	Rize cake	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
2081	Semolina cake	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
2082	Pastry	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
2084	Lemon snow pie	5	-	-	-	-	-	-	-	-	/	/	-	/		-	**NA**				
3604	**Ready to eat food**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3605	**Bacon burger**	1	+	+	+	+	+	+	+	+M	+	+	+p	+		+	**PA**	+	+	+	**PA**
3606	**Ready to eat food**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3607	**Cappucino**	1	+	-	-	-	-	-	+	+p	+	+	+p	+		+	**PD**	+	+	+	**PD**
3608	**Pastry(Forêt noire)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3609	**Pastry(cerisier)**	1	+	-	-	-	-	-	+	+p	+	+	+p	+		+	**PD**	+	+	+	**PD**
3612	**Paella**	1	+	+	+	+	+	+	+	+M	+	+	+p	+		+	**PA**	+	+	+	**PA**
3614	**Salmon and brocolis pie**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3616	**Ready to eat salad(Piémontaise)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3617	**Pasta with cheese and ham**	1	+	+	+	+	+	+	+very wr	+m	+	+	+m	+		+	**PA**	+ wr	+	+	**PA**
3618	**Sandwich(ham, egg, tomato, salad)**	1	+	+	+	+	+	+	+very wr	+ni/+	+	+	+ni/+	+		+	**PA**	+ wr	+	+	**PA**
3619	**Sandwich(ham, egg, tomato)**	1	+	+	+	+	+	+	+very wr	+ni/+	+	+	+ni/+	+		+	**PA**	+ very wr	+	+	**PA**
3620	**Ready to eat salad(Piémontaise)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**
3621	**Vegetables mix**	1	+	-	-	-	-	-	+	+M	+	+	+p	+		+	**PD**	+	+	+	**PD**
3623	**Sandwich**	1	+	-	-	-	-	-	+wr	+ni/+	+	+	+ni/+	+		+	**PD**	+ wr	+	+	**PD**
3659	**Ready to eat meal(pork with vegetables)**	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	**PA**	+	+	+	**PA**

MULTI-COMPONENT FOODS OR MEAL COMPONENTS																					
Sample n°	Product	Protocol (according to the technical proposal)	Global result	ISO 6579 method					Reveal Salmonella Test										Enrichment storage during 72H-4°C			
				RVS broth		MKTTn broth		Result	Test result	Confirmation						Final result	Agreement		Test result	Confir-mation	Final result	Agreement
										XLD			Brilliance salmonella									
				XLD	Chromagar salmonella	XLD	Chromagar salmonella			Typical colonies	Latex test	Reference tests	Typical colonies	Latex test	Reference tests							
3660	Ready to eat meal(gratin Dauphinois))	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3661	Ready to eat meal(Duck parmentier)	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3662	Moussaka with poultry	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3663	Cappucino	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3664	Pastry(Forêt noire)	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3665	Pastry	1	+	-	-	-	-	-	+	+p	+	+	+p	+		+	PD		+	+	+	PD
3666	Ready to eat meal(pork)	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3667	Ready to eat meal(gratin Dauphinois))	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3668	Ready to eat meal(duck)	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3669	Moussaka	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3673	Ready to eat meal(pork and rice)	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3675	Pork samoussa	1	+	+	+	+	+	+	+	+p	+	+	+p	+		+	PA		+	+	+	PA
3689	Turkey	1	-	-	-	-	-	-	-	-			-			-	NA					
4395	Ready to eat food with veal	1	-	-	-	-	-	-	+(wr)	-			-			-(PPNC)	PPNA					
4664	White cabbage	1	-	-	-	-	-	-	+(wr)	-			-			-(PPNC)	PPNA		-	-	-	NA
4665	Deli-salad with cucumber	1	-	-	-	-	-	-	-	-			-			-	NA					
4666	Deli-salad with carrots	1	-	-	-	-	-	-	-	-			-			-	NA					
4667	Deli-salad with celery	1	-	-	-	-	-	-	-	-			-			-	NA					
4668	Deli-salad with mayonnaise	1	-	-	-	-	-	-	-	-			-			-	NA					
4680	Deli-salad with coleslow	1	-	-	-	-	-	-	-	-			-			-	NA					
4681	Deli-salad with red cabbage	1	-	-	-	-	-	-	-	-			-			-	NA					
A77	Coffee éclair	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					
A78	Chocolat éclair	1	-	-	-	-	-	-	-	-	/	/	-	/		-	NA					

Appendix 5: Relative detection level: raw data (Initial validation, 2011 and renewal study, 2020)

The results of the samples tested during the renewal study (2020) are highlighted in grey in the table

Egg product *Salmonella* Enteritidis 657 Aerobic mesophilic flora <200/g **Protocol 5**

Sample N°	Level	Inoculation level (cfu/25g)	ISO 6579 method						Reveal Salmonella Test																					
			RVS broth		MKTTn broth		Result	Pos/Total	RVS Broth								MKTTn Broth								RVS Broth + MKTTn Broth					
			XLD	Chromagar salmonella	XLD	Chromagar salmonella			Reveal Test	XLD		Brillance salmonella		Final result	Pos/Total		Reveal Test	XLD		Brillance salmonella		Pos/Total		Reveal Test	XLD		Brillance salmonella		Pos/Total
										Typical colonies	Lax	Typical colonies	Lax					Typical colonies	Lax	Typical colonies	Lax				Typical colonies	Lax	Typical colonies	Lax	
1421	0	/	-	-	-	-	-	0/6	-	-	/	-	/	-	0/6		-	-	/	-	/	0/6		-	-	/	-	/	0/6	
1422			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1423			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1424			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1425			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1426			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1427	1	0,3	-	-	-	-	-	2/6	-	-	/	-	/	-	2/6		-	-	/	-	/	2/6		-	-	/	-	/	2/6	
1428			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1429			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1430			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1431			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1432			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1433	2	0,5	+	+	+	+	+	4/6	+	+	+	+	+	+	4/6		+	+	+	+	+	4/6		+	+	+	+	+	4/6	
1434			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1435			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1436			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1437			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1438			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1439	3	1	+	+	+	+	+	3/6	+	+	+	+	+	+	3/6		+	+	+	+	+	3/6		+	+	+	+	+	3/6	
1440			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1441			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1442			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1443			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1444			-	-	-	-	-		-	-	/	-	/	-			-	-	/	-	/			-	-	/	-	/		
1445	4	2,5	+	+	+	+	+	6/6	+	+	+	+	+	+	6/6		+	+	+	+	+	6/6		+	+	+	+	+	6/6	
1446			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1447			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1448			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1449			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		
1450			+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+			+	+	+	+	+		

Ready to eat food (Pasta) *Salmonella* Anatum 6140 Aerobic mesophilic flora: 2,6 108/g Protocol 1

Sample N°	Level	Inoculation level (cfu/25g)	ISO 6579 method						Reveal Salmonella Test						
			RVS broth		MKTTn broth		Result	Pos/Total	Test result	Confirmation				Final result	Pos/Total
			XLD	Chromagar salmonella	XLD	Chromagar salmonella				XLD		Brilliance salmonella			
										Typical colonies	Latex	Typical colonies	Latex		
2676	0	/	-	-st	-st	-st	-	0/6	-	-st	/	-st	/	-	0/6
2677			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2678			-	-	-st	-st	-		-	-st	/	-st	/	-	
2679			-	-	-st	-st	-		-	-st	/	-st	/	-	
2680			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2681			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2682	1	0,3	-	-st	-st	-st	-	1/6	+weak reaction	+p	+	+p	+	+	3/6
2683			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2684			-	-st	-st	-st	-		+	+p	+	+p	+	+	
2685			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2686			+p	+p	+p	+p	+		+weak reaction	+p	+	+p	+	+	
2687			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2688	2	0,7	-st	-st	-st	-st	-	2/6	-	-st	/	-st	/	-	2/6
2689			-	-st	-st	-st	-		+	+p	+	+p	+	+	
2690			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2691			-	-st	-st	-st	-		-	-st	/	-st	/	-	
2692			+p	+p	+p	+p	+		+weak reaction	+p	+	+p	+	+	
2693			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
2694	3	1,4	+p	+p	+p	+p	+	3/6	+	+p	+	+p	+	+	6/6
2695			-	-st	-st	-st	-		+	+p	+	+p	+	+	
2696			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2697			-	-st	-st	-st	-		+	+p	+	+p	+	+	
2698			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2699			-	-st	-st	-st	-		+	+p	+	+p	+	+	
2700	4	3,5	+p	+p	+p	+p	+	6/6	+	+p	+	+p	+	+	6/6
2701			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2702			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2703			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2704			+p	+p	+p	+p	+		+	+p	+	+p	+	+	
2705			+p	+p	+p	+p	+		+	+p	+	+p	+	+	

Ground beef *Salmonella* Infantis 128 Aerobic mesophilic flora : 1.6 103/g Protocol 2

Sample N°	Level	Inoculation level (cfu/25g)	ISO 6579 method						Reveal Salmonella Test						
			RVS broth		MKTTn broth		Result	Pos/Total	Test result	Confirmation				Final result	Pos/Total
										XLD		Brilliance salmonella			
			XLD	Chromagar salmonella	XLD	Chromagar salmonella				Typical colonies	Latex	Typical colonies	Latex		
4355	0	/						0/6							0/6
4356			-	-	-	-	-		-	-	/	-	/	-	
4357			-	-	-	-	-		-	-	/	-	/	-	
4358			-	-	-	-	-		-	-	/	-	/	-	
4359			-	-	-	-	-		-	-	/	-	/	-	
4360			-	-	-	-	-		-	-	/	-	/	-	
4361	1	0,2	-	-	-	-	-	1/6	+	+	+	+	+	+	1/6
4362			-	-	-	-	-		-	-	/	-	/	-	
4363			+ni/+	+	+	+	+		-	-	/	-	/	-	
4364			-	-	-	-	-		-	-	/	-	/	-	
4365			-	-	-	-	-		-	-	/	-	/	-	
4366			-	-	-	-	-		-	-	/	-	/	-	
4367	2	0,4	-	-	-	-	-	3/6	-	-	/	-	/	-	2/6
4368			+	+	+	+	+		-	-	/	-	/	-	
4369			+	+	+	+	+		+	+	+	+	+	+	
4370			-	-	-	-	-		-	-	/	-	/	-	
4371			+ni/+	+	+	+	+		-	-	/	-	/	-	
4372			-	-	-	-	-		+	+	+	+		+	
4373	3	0,7	-	-	-	-	-	3/6	-	-	/	+/-(Salmonella spp)	+	-	4/6
4374			+	+	+	+	+		+	+	+	+	+	+	
4375			+ni/+	+	+	+	+		-	-	/	-	/	-	
4376			-	-	-	-	-		+	+	+	+	+	+	
4377			+ni/+	+	+	+	+		+	+	+	+	+	+	
4378			-	-	-	-	-		+	+	+	+	+	+	
4379	4	1,8	+	+	+	+	+	6/6	-	-	/	-	/	-	3/6
4380			+	+	+	+	+		+	+	+	+	+	+	
4381			+	+	+	+	+		-	-	/	-	/	-	
4382			+ni/+	+	+	+	+		+	+	+	+	+	+	
4383			+ni/+	+	+	+	+		+	+	+	+	+	+	
4384			+	+	+	+	+		-	-	/	-	/	-	

Saithe fillet *Salmonella* Bareilly Aerobic mesophilic flora : 3.8 $10^{4/}$g Protocol 2

Sample N°	Level	Inoculation level (cfu/25g)	ISO 6579 method						Reveal Salmonella Test							
			RVS broth		MKTTn broth		Result	Pos/Total	Test result	Confirmation				Final result	Pos/Total
										XLD		Brilliance salmonella			
			XLD	Brilliance salmonella	XLD	Brilliance salmonella				Typical colonies	Latex	Typical colonies	Latex		
P1	0	/	-	-st	-st	-st	-	0/5	-	-st	/	-st	/	-	0/5
P2			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P3			-	-	-st	-st	-		-	-st	/	-st	/	-	
P4			-	-	-st	-st	-		-	-st	/	-st	/	-	
P5			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P6	1	0,8	-	-st	-st	-st	-	10/20	-	-st	/	-st	/	-	8/20
P7			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P8			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P9			-	-st	-st	-st	-		+	+p	+p	+p	+	+	
P10			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P11			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P12			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P13			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P14			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P15			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P16			-	-st	-st	-st	-		+	+p	+p	+p	+	+	
P17			-	-st	/	-st	/		-	-st	/	-st	/	-	
P18			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P19			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P20			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P21			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P22			-	-st	-st	-st	-		+	+p	+p	+p	+	+	
P23			-	-st	-st	-st	-		+	+p	+p	+p	+	+	
P24			-	-st	-st	-st	-		-	-st	/	-st	/	-	
P25			+p	+p	+p	+p	+		-	-st	/	-st	/	-	
P26	2	1.5	+p	+p	+p	+p	+	5/5	+	+p	+p	+p	+	+	5/5
P27			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P28			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P29			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	
P30			+p	+p	+p	+p	+		+	+p	+p	+p	+	+	

Appendix 6: Inclusivity/Exclusivity: Raw data (Initial validation, 2011 and renewal study, 2020)

The results of the strains tested during the renewal study (2020) are highlighted in grey in the table

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
1	*Salmonella*	Abony (A)	CIP 8039		REVIVE	3	+(weak reaction)	+	+	
2	*Salmonella*	Agona (B)	A00V38	Feedstuff	REVIVE	1	+	+	+	
3	*Salmonella*	Anatum (E1)	6140	Reay to eat food (Bœuf Bourguignon)	REVIVE	3	-	-	/	
					REVIVE + 25ml Milk	2	+(weak reaction)	+	+	
4	*Salmonella*	Bardo		Sausage meat	REVIVE	7	+	+	+	
5	*Salmonella*	Berta (D1)	CIP 10682		REVIVE	2	+	pink colonies	+	
6	*Salmonella*	Blockley (C2/C3)	Ad 923	Chicken	REVIVE	9	+(weak reaction)	+	+	
7	*Salmonella*	Bovismorbificans (C2/C3)	728	Agar	REVIVE	8	+(weak reaction)	+	+	
8	*Salmonella*	Braenderup (C1)	178	Sausages	REVIVE	9	+	+	+	
9	*Salmonella*	Brandenburg (B)	Ad 351	Seafood	REVIVE	3	+	+	+	
10	*Salmonella*	Bredeney (B)	396	Ground beef	REVIVE	<1	+	+	+	
11	*Salmonella*	Cremieu (C2/C3)	230	Hare	REVIVE	<1	+(weak reaction)	+	+	
12	*Salmonella*	Derby (B)	Ad 1093	Frozen fish fillet	REVIVE	5	+	+	+	
13	*Salmonella*	Dublin (D1)	Ad 528	Pancake	REVIVE	<1	+	+	+	
14	*Salmonella*	Duisburg (B)	42	Poultry	REVIVE	3	+	+	+	
15	*Salmonella*	Enteritidis (D1)	Ad 926	Raw veal meat	REVIVE	1	+	+	+	
16	*Salmonella*	Essen (B)	38	Poultry	REVIVE	4	-	-	/	
					REVIVE + 25ml Milk	10	+	+	+	

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
17	*Samonella*	Falkensee (E1)	693	Sausage meat	REVIVE	4	+	+	+	
18	*Salmonella*	Gallinarum biovar pullorum (D1)	Ad 300	Poultry slaughterhouse	REVIVE	2	-	-	/	
					REVIVE + 25ml Milk	4	-(very weak reaction in BHI)	pink colonies	+weak reaction	atypical microcolonies
					REVIVE + 25ml Milk	23	-			
19	*Salmonella*	Gallinarum (D1)	1	Poultry environmental sample	REVIVE	9	+very weak reaction	pink colonies	+	pink colonies on XLD
20	*Salmonella*	Gallinarum (D1)	2	Poultry environmental sample	REVIVE	7	+very weak reaction	small colonies with black center	+	small black center colonies on XLD
21	*Salmonella*	Give (E1)	438	Ground beef	REVIVE	7	+	+	+	
22	*Salmonella*	Hadar (C2/C3)	35	Poultry	REVIVE	11	+(weak reaction)	+	+	
23	*Salmonella*	Heidelberg (B)	A00E005	Dairy industry environmental sample	REVIVE	6	+	+	+	
24	*Salmonella*	Indiana (B)	2	Fish flour	REVIVE	4	-	-	/	
					REVIVE + 25ml Milk	8	+	+	+	
25	*Salmonella*	Infantis (C1)	12	Ready to eat food	REVIVE	6	+	+	+	
26	*Salmonella*	Kentucky (C2/C3)	CIP 105623		REVIVE	1	-	+	+	
					REVIVE + 25ml Milk	10	+	+	+	
27	*Salmonella*	Kottbus (C2/C3)	1	Environmental sample (Slaughterhouse)	REVIVE	4	+	+	+	
28	*Salmonella*	Lille (C1)	37	Poultry	REVIVE	10	+(weak reaction)	+	+	
29	*Salmonella*	Livingstone (C1)	E1	Egg white powder	REVIVE	7	+	+	+	
30	*Salmonella*	London (E1)	326	Ham	REVIVE	14	+	+	+	
31	*Salmonella*	Manhattan (C2/C3)	900	Dairy environmental sample	REVIVE	3	+(weak reaction)	+	+	

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
32	*Salmonella*	Mbandaka (C1)	Ad 914	Mayonnaise	REVIVE	6	+	+	+	
33	*Salmonella*	Meleagridis (E1)	505	Raw milk	REVIVE	3	+	+	+	
34	*Salmonella*	Montevideo (C1)	Ad 912	Raw milk	REVIVE	25	+	+	+	
35	*Salmonella*	Murenster (E1)	CIP 107859		REVIVE	3	-	-	/	
					REVIVE + 25ml Milk	10	+	+	+	
36	*Salmonella*	Napoli (D1)	Ad 928	Bovine	REVIVE	7	+	+	+	
37	*Salmonella*	Newport (C2/C3)	540	Toulouse sausage	REVIVE	9	+(weak reaction)	+	+	
38	*Salmonella*	Norwich (C1)	Ad 1172	Dairy product	REVIVE	3	+	+	+	
39	*Salmonella*	Panama (D1)	195	Ground beef	REVIVE	2	+	+	+	
40	*Salmonella*	Paratyphi A (A)	ATCC 9150	/	REVIVE	<1	-	+	+	
					REVIVE + 25ml Milk	4	-(+ very weak reaction in BHI)	+	+	+
						20	-	+	+	+
41	*Salmonella*	Paratyphi A (A)	ATCC 11511	/	REVIVE + 25ml Milk	15	-	+	+	+
42	*Salmonella*	Paratyphi A (A)	CIP 5541	/	REVIVE + 25ml Milk	10	-	+	+	+
41	*Salmonella*	Paratyphi B (B)	Ad 301	Clinical	REVIVE	2	-	+	+	+
					REVIVE + 25ml Milk	3	-(+ very weak reaction in BHI)	-	/	
					REVIVE + 25ml Milk	20	+	+	+	+
42	*Salmonella*	Paratyphi B (B)	Ad1439	White chicken meat	REVIVE + 25ml Milk	26	+	+	+	+
43	*Salmonella*	Paratyphi C (C1)	ATCC 13428	/	REVIVE	<1	+(weak reaction)	+	+	
44	*Salmonella*	Regent (E)	328	Duck	REVIVE	13	+	+	+	
45	*Salmonella*	Rissen (C)	39	Poultry	REVIVE	2	-	-	/	+
					REVIVE + 25ml Milk	4	+(weak reaction)	+	+	
46	*Salmonella*	Saintpaul (B)	F31	Pilchard fillet	REVIVE	3	+	+	+	
47	*Salmonella*	Senftenberg (E4)	Ad 355	Seafood	REVIVE	5	+	+	+	

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
48	*Salmonella*	Tennessee (C1)	A00E006	Dairy industry environmental sample	REVIVE	14	+(weak reaction)	+	+	
49	*Salmonella*	Thompson (C1)	AER301	Poultry	REVIVE	9	+	+	+	
50	*Salmonella*	Typhi (D1)	Ad 302	Clinical	REVIVE	1	+	+	+	
51	*Salmonella*	Typhimurium (B)	305	Paella	REVIVE	5	+	+	+	
52	*Salmonella*	Typhimurium SI 1,4,[5],12:-:- (variant immobile)	Ad1333	Tiramisu	REVIVE	5	+	+	+	+
53	*Salmonella*	Typhimurium SI 1,4,[5],12:i:- (variant monophasique)	Ad1334	Ready to eat food	REVIVE	8	+	+	+	+
54	*Salmonella*	Typhimurium SI 1,4,[5],12:-:1,2 (variant monophasique)	Ad1335	Hen	REVIVE	7	+	+	+	+
55	*Salmonella*	Virchow (C1)	F276	Curry	REVIVE	11	+	+	+	
56	*Salmonella*	Wien (B)	CIP 8122	/	REVIVE	2	+	+	+	
57	*Salmonella*	Oranienburg (C)	NCTC 5743	/	REVIVE	9	+	+	+	+
58	*Salmonella*	Weltevreden (E)	NCTC 6534	/	REVIVE	6	+	+	+	+
59	*Salmonella*	Orion (E)	NCTC 7370	/	REVIVE	9	+	+	+	+
60	*Salmonella*	Muenster (E)	NCTC 5780	/	REVIVE	10	+	+	+	+
61	*Salmonella*	Singapore (C)	NCTC 7376	/	REVIVE	10	+	+	+	+
62	*Salmonella*	Muenchen (C)	NCTC 5755	/	REVIVE	9	+	+	+	+
63	*Salmonella*	Javiana (D)	NCTC 6495	/	REVIVE	8	+	+	+	+
64	*Salmonella*	Stanley (B)	NCTC 92	/	REVIVE	5	+	+	+	+
65	*Salmonella*	Chester (B)	NCTC 5718	/	REVIVE	10	+	+	+	+
66	*Salmonella*	Abortusequi (B)	NCTC 5727	/	REVIVE	6	+	+	+	+

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
67	*Salmonella*	Schwarzengrund (B)	NCTC 6759	/	REVIVE	7	+	+	+	+
68	*Salmonella*	Abortusovis (B)	NCTC 10241	/	REVIVE	11	+	+	+	+
69	*Salmonella*	Bareilly (C)	NCTC 5745	/	REVIVE	10	+	+	+	+
70	*Salmonella*	Reading (B)	NCTC 5992	/	REVIVE	10	+	+	+	+
71	*Salmonella*	Reading (B)	NCTC 72	/	REVIVE	12	+	+	+	+
72	*Salmonella*	Reading (B)	NCTC 5720	/	REVIVE	9	+	+	+	+
73	*Salmonella*	Sandiego (B)	NCTC 10544	/	REVIVE	8	+	+	+	+
74	*Salmonella*	Sandiego (B)	NCTC 6024	/	REVIVE	8	+	+	+	+
75	*Salmonella*	Georgia (C)	NCTC 6849	/	REVIVE	12	+	+	+	+
76	*Salmonella*	Potsdam (C)	NCTC 5744	/	REVIVE	13	+	+	+	+
77	*Salmonella*	Glostrup (C)	NCTC 5757	/	REVIVE	11	+	+	+	+
78	*Salmonella*	Litchfield (C)	NCTC 6028	/	REVIVE	10	+	+	+	+
79	*Salmonella*	Sendai (D)	NCTC 5772	/	REVIVE	13	+	+	+	+
80	*Salmonella*	Vejle (E)	NCTC 6260	/	REVIVE	12	+	Transparent colonies	+	+
81	*Salmonella*	Uganda (E)	NCTC 6015	/	REVIVE	11	+	+	+	+
82	*Salmonella*	Krefeld (E)	NCTC 9884	/	REVIVE	8	+	+	+	+
83	*Salmonella*	Derby (B)	2H5	Animal meal	REVIVE	5	+	+	+	+
84	*Salmonella*	Livingstone (C)	2A7	Soybean meal	REVIVE	5	+	+	+	+
85	*Salmonella*	Infantis (C)	4A3	Yeast	REVIVE	5	+	+	+	+
86	*Salmonella*	Montevideo (C)	1F3	Animal meal	REVIVE	3	+	+	+	+
87	*Salmonella*	Mbandaka (C)	1E6	Animal meal	REVIVE	3	+	+	+	+
88	*Salmonella*	Mbandaka (C)	1D8	Pet food	REVIVE	4	+	+	+	+
89	*Salmonella*	Senftenberg (E)	1C3	Fish feed	REVIVE	7	+	+	+	+
90	*Salmonella*	Virchow (C)	3I6	Wipe	REVIVE	8	+	+	+	+
91	*Salmonella*	London (E)	1B1	Cereals	REVIVE	7	+	+	+	+

	INCLUSIVITY STRAINS									
	Strain	Species	Reference	Origin	Enrichment conditions	Inoculation level(cfu/200 ml enrichment broth)	Reveal Salmonella Test			Reference method
							Reveal Test result	XLD	Latex test	
92	*Salmonella*	Tennessee (C)	1C8	Meat flour	REVIVE	2	+	+	+	+
93	*Salmonella*	Agona (B)	1A8	Barn	REVIVE	5	+	+	+	+
94	*Salmonella*	Agona (B)	1A7	Cattle feed	REVIVE	5	+	+	+	+
95	*Salmonella*	Anatum (E)	1F1	Animal meal	REVIVE	9	+	+	+	+
96	*Salmonella*	Anatum (E)	1A3	Creton	REVIVE	7	+	+	+	+
97	*Salmonella*	Braenderup (C)	3C7	Dusts	REVIVE	6	+	+	+	+
98	*Salmonella*	Derby (B)	1H9	Poultry feed	REVIVE	6	+	+	+	+
99	*Salmonella*	Senftenberg (E)	1B5	Soya	REVIVE	6	+	+	+	+
100	*Salmonella*	Kentucky (C)	1C4	Cattle feed	REVIVE	11	+	+	+	+

	EXCLUSIVITY STRAINS				
	Strain	**Reference**	**Origin**	**Inoculation level** cfu/ml BPW	**Reveal Salmonella test result**
1.	*Citrobacter braakii*	Ad833	Raw beef meat	4.5 10^5	-
2.	*Citrobacter Diversus*	adria 140	Raw milk	4.2 10^5	-
3.	*Citrobacter freundii*	adria 23	Raw pork sausage	4.1 10^5	-
4.	*Citrobacter freundii*	adria 175	Raw duck meat	5.0 10^5	-
5.	*Citrobacter koseri*	adria 71	Frozen vegetables	5.5 10^5	-
6.	*Enterobacter agglomerans*	adria 11	Cheese	2.4 10^5	-
7.	*Enterobacter amnigenus*	A00C068	Raw poultry meat	3.4 10^5	-
8.	*Enterobacter cloacae*	adria 10	Raw milk	1.8 10^5	-
9.	*Enterobacter intermedius*	adria 60	Bean	9.8 10^4	-
10.	*Enterobacter kobei*	Ad 342	Ham	3.8 10^5	-
11.	*Enterobacter sakazakii*	adria 95	Fermented milk	4.7 10^5	-
12.	*Erwinia carotovora*	CIP 8283	Potatoes	6.0 10^3	-
13.	*Escherichia coli*	adria 19	Greated carrots	2.9 10^5	-
14.	*Escherichia hermanii*	Ad 461	Dessert	2.3 10^5	-
15.	*Escherichia vulneris*	adria 127	Raw milk	5.5 10^5	-
16.	*Hafnia alvei*	adria 167	Raw pork sausage	4.6 10^5	-
17.	*Klebsiella oxytoca*	57	Food product	3.2 10^5	-
18.	*Klebsiella pneumoniae*	47	Raw turkey meat	4.4 10^5	-
19.	*Kluyvera spp*	adria 41	Raw milk	2.2 10^5	-
20.	*Morganella morganii*	CIP A236	/	3.5 10^5	-
21.	*Pantoea agglomerans*	adria 86	Frozen vegetables	4.5 10^5	-
22.	*Proteus mirabilis*	Ad639	Mayonnaise	4.8 10^5	-
23.	*Proteus vulgaris*	adria 43	Sliced ham	5.0 10^4	-
24.	*Providencia rettgeri*	adria 112	White liquid egg	2.2 10^5	-
25.	*Rhanella aquatilis*	adria 69	Molluscs	3.6 10^4	-
26.	*Serratia liquefaciens*	26	Egg product	1.2 10^5	-
27.	*Serratia proteomaculans*	A00C056	Ham	9.4 10^4	-
28.	*Shigella flexneri*	CIP 8248	/	2.0 10^5	-
29.	*Shigella sonnei*	CIP 8249T (ATCC 29930)	/	1.7 10^5	-
30.	*Yersinia enterocolotica*	adria 32	Bacon	1.5 10^5	-