ADRIA FOOD EXPERTISE

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NF VALIDATION
Validation of alternative analytical methods
Application in food microbiology

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

Qiagen *mericon*® *Salmonella* spp.
(Certificate number: QIA 36/01 - 02/13)

for the detection of *Salmonella* spp. in meat products, fish and seafood products, vegetables, egg products, animal feed products and pet food, and production environmental samples

Qualitative method

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This report consists of 99 pages, including 9 appendices.
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1 INTRODUCTION 4

2 METHOD PROTOCOLS 4

2.1 Alternative method 4

2.1.1 Principle 4

2.1.2 Protocol 6

2.1.3 Restriction 6

2.2 Reference method 6

2.3 Study design 7

3 INITIAL VALIDATION, EXTENSION/RENEWAL STUDIES: RESULTS 7

3.1 Method comparison study 7

3.1.1 Sensitivity study 8

3.1.2 Relative detection level 18

3.1.3 Inclusivity / exclusivity 21

3.2 Practicability 23

3.3 Inter-laboratory study (ISHA, 2013) 24

3.3.1 Study organisation 24

3.3.2 Experimental parameters controls 24

3.3.3 Result analysis 26

3.3.4 Calculation and interpretation 30

3.3.5 Evaluation of the LOD $_{50\%}$, LOD $_{95\%}$ and RLOD between laboratories 32

3.4 General conclusion 32

- *Appendix 1 - Flow diagram of the alternative method: Qiagen mericon® Salmonella spp. 34*
- *Appendix 2 - Flow diagram of the reference method 35*
- *Appendix 3 - Artificial contamination of the samples (Initial validation study, ISHA -2013 and extension study, ADRIA Développement - 2016, 2021) 36*
- *Appendix 5 - Sensitivity study: raw data (Initial validation study, ISHA - 2013 and Extension study, ADRIA Développement - 2016 & 2021) 47*
- *Appendix 6 - Relative level of detection study: raw data (Initial validation study, 2013 - Extension study, 2021) 77*
- *Appendix 7 - Inclusivity and exclusivity: raw data (Initial validation study, ISHA - 2013 and Extension study, ADRIA Développement - 2016) 84*
- *Appendix 8 - AOAC Inclusivity & exclusivity: raw data 87*
- *Appendix 9 - Results obtained by the expert laboratory (ISHA) and the collaborative laboratories (Initial validation study, 2013) 92*

Quality Assurance documents related to this study can be consulted upon request from **QIAGEN**.

The technical protocol and the result interpretation were realized according to the EN ISO 16140-2:2016 and the AFNOR technical rules (PR revision 7).

Validation protocols	▪ ISO 16140-1 (2016): Microbiology of the food chain - Method validation — *Part 1: Vocabulary* ▪ 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 (PR Revision 7)
Reference method♦	▪ ISO 6579-1 (February 2017) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp ▪ ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSRV and SC
Alternative method	**Qiagen *mericon*® *Salmonella* spp.**
Scope	☒ **Meat products** ☒ **Fish and seafood products** ☒ **Vegetables** ☒ **Egg products** ☒ **Animal feed and pet food** ☒ **Production environmental samples**
Certification organism	AFNOR Certification (http://nf-validation.afnor.org/)

♦ Analyses performed according to the COFRAC accreditation

1 INTRODUCTION

The **Qiagen *mericon*® *Salmonella* spp.** was validated on the 1st February 2013 with the certificate number QIA 36/01 - 02/13 for four food categories (meat, dairy, seafood and vegetables and egg products), animal feed and pet food products and production environmental samples. Two extraction protocols were covered by the certificate, the manual extraction protocol and the automated extraction protocol using the QIAsymphony SP. The validation study was performed by ISHA.

Additional testing was performed in December 2016 in order to fulfil the AFNOR technical rules (revision 6) and the EN ISO 16140-2:2016. The method was renewed in May 2017

For the renewal performed in 2021, only the manual extraction protocol was kept. The category seafood and vegetables was split into two categories and the dairy category was removed for the renewal study performed in 2021.**The scope of the method after renewal became:**

- **Meat products**
- **Fish and seafood products**
- **Vegetables**
- **Egg products**
- **Animal feed and pet food**
- **Production environmental samples.**

2 METHOD PROTOCOLS

2.1 Alternative method

The flow diagram of the alternative method is given in **Appendix 1**.

2.1.1 Principle

mericon Pathogen Detection Assays are a ready-to-use system for the detection of specific DNA fragments from pathogens in food, animal feed, and environmental samples using real-time polymerase chain reaction (PCR). The Multiplex PCR Master Mix included in each kit contains QIAGEN proprietary technology including HotStarTaq Plus DNA Polymerase, patented multiplex PCR technology such as Factor MP, and fast cycling technology including Q-

Bond®. Multiplex PCR Master Mix is also highly tolerant to PCR inhibitors. The analytical procedure of these protocols allows the user to perform analysis in accordance with local official requirements.

The method was initially validated using the software V.2.2.2.9.; the renewal study (2017) was done with the version V2.3.1.49. This renewal and extension study has been performed using the version V2.3.5. This new version is compatible with Windows 7 while the previous version was compatible with Windows XP, no modification occurred on the algorithm.

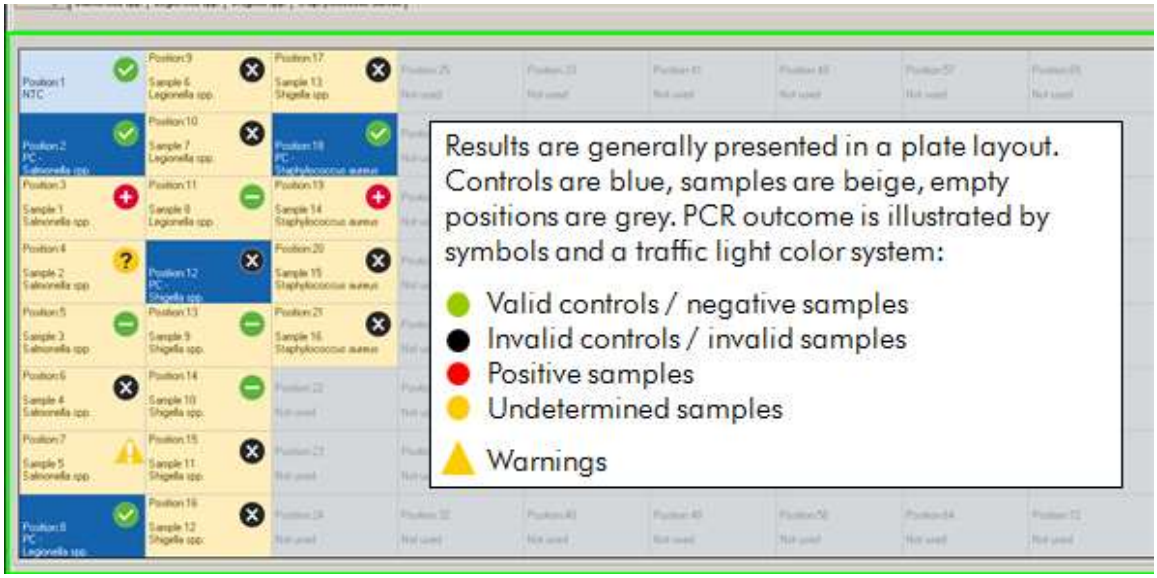
The interpretation is made as follows:

	Control (Yellow) Channel		Target (Green) Channel	
Type	Ct range	Result	Ct range	Result
Positive control	Ct 01.00 – 27.99	Not in range	Ct 01.00 – 27.99	Not in range
	Ct 28.00 – 32.00	Valid	Ct 28.00 – 32.00	Valid
	Ct 32.01 – 40.00	Not in range	Ct 32.01 – 40.00	Not in range
	Ct ≥ 40.01	Failed	Ct ≥ 40.01	Failed
Negative control	Ct 01.00 – 27.99	Not in range	Ct 01.00 – 40.00	Invalid
	Ct 28.00 – 32.00	Valid	Ct ≥ 40.01	Valid
	Ct 32.01 – 40.00	Not in range		
	Ct ≥ 40.01	Failed		
Sample	Ct 01.00 – 27.99	Not in Range	Ct 1.00 – 9.99	Early Ct
	Ct 28.00 – 32.00	Valid	Ct 10.00 – 38.00	Positive
	Ct 32.01 – 40.00	Inhibited	Ct 38.01 – 40.00	Undetermined
	Ct ≥ 40.01	Failed	Ct ≥ 40.01	Negative

The different symbols given by the software are the following:

Symbol	Result	Next step
+	Target detected	Accept - positive
–	Target not detected	Accept - negative
?	Undetermined	repeat analysis
X	Invalid controls or samples (out of range)	Dilute and repeat if IC>32.01 and target is not detected
!	Warning	Attention required

An example of a Results Table using the mericon-specific mode software version 2.3 is given below:



2.1.2 Protocol

The protocol is the following:

- Enrichment step in BPW for 18 h ± 2 h at 37°C ± 1°C,
- Manual DNA extraction and purification on 1 ml enriched BPW. Thermal lysis and centrifugation;
- PCR on 10 µl of DNA extract;
- Confirmation by the complete protocol of the reference method.

2.1.3 Restriction

There is no restriction

2.2 Reference method ♦

For the previous studies, the reference method was the EN ISO 6579 (December 2002): Microbiology of food and animal feeding stuffs - Horizontal method for the detection of *Salmonella* spp..

♦ Analyses performed according to the COFRAC accreditation

For the renewal performed in 2021, the reference methods were:

- The ISO 6579-1 (February 2017) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.
- The ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSRV and SC.

The flow diagram is given in **Appendix 2**.

The modifications which occur in the version published in 2017 and 2020 are considered as minor and have no impact on the data obtained for the initial validation study performed in 2013.

2.3 Study design

It is a paired study design as reference and alternative methods have the same enrichment procedure.

3 INITIAL VALIDATION, EXTENSION/RENEWAL STUDIES: RESULTS

3.1 Method comparison study

The method comparison study is a study performed by the expert laboratory to compare the alternative method with the reference method.

The study was carried out on a diversity of samples and strains representative of agri-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/.

3.1.1 Sensitivity study

The sensitivity (SE) is the ability of the method to detect the analyte by either the reference or alternative method.

3.1.1.1 Number and nature of samples

Combining the different studies (initial and renewals), 185 positive and 226 negative results were obtained for a total of 411 samples analysed. The repartition of samples per category and type is provided in Table 1.

Table 1 – Distribution per tested category and type

Category		Type		Positive samples	Negative samples	Total
1	Meat products	a	Raw poultry meat	9	11	20
		b	Raw meat products (except poultry)	9	13	22
		c	Delicatessen and ready to reheat products	12	15	27
			Total	30	39	69
2	Fish and seafood products	a	Raw fish	11	11	22
		b	Marinated, smoked, raw fish-based preparations	11	10	21
		c	Cooked products	9	12	21
			Total	31	33	64
3	Vegetables	a	Spices, aromatic herbs, cocoa products	11	23	34
		b	Raw and mapped vegetable products including sprouts	11	13	24
		c	RTE, RTRH vegetables and vegetables-based preparations	10	11	21
			Total	32	47	79
4	Egg products	a	Pastries	10	18	27
		b	Eggs and derivates	11	10	21
		c	Ready to eat egg-based products	11	10	21
			Total	32	38	72
5	Animal feed and pet food	a	Pet food	10	10	20
		b	Bone meals	12	10	22
		c	Cattle feed, meat for animals	8	12	20
			Total	30	32	62
6	Production environmental samples	a	Swabs	9	11	20
		b	Process waters	10	11	21
		c	Residues, dusts	11	15	26
			Total	30	37	67
All categories				**185**	**226**	**411**

3.1.1.2 Artificial contamination of the samples

Artificial contaminations were performed using spiking or seeding protocols. For the spiking protocol, the injury efficiency was evaluated by comparing enumeration results onto selective and non-selective agar plates (respectively XLD and TSYEA). The artificial contaminations are provided in **Appendix 3**.

The repartition of the positive samples per contamination level and type (natural and artificial) is provided in Table 2.

Table 2 - Repartition of the positive samples per contamination level and type (natural and artificial)

		Naturally contaminated	Positive samples						Total
			Spiking (CFU/sample)			Seeding (CFU/sample)			
			<5 CFU	5<x<10	>10 CFU	<3 CFU	3<x<10	>10 CFU	
All categories	Samples number	28	64	32	9	42	10	0	185
	Percentage	15,1%	34,6%	17,3%	4,9%	22,7%	5,4%	0,0%	100,0%

Following the renewal study performed in 2017, the percentage of samples inoculated between 3 or 5 CFU and 10 CFU was 32 %, this was accepted by the AFNOR Technical board. However, during the presentation of the renewal study project study in January 2021 it was requested to reduce this percentage. This has been done by removing 18 samples tested for the initial validation study inoculated between 3 and 10 CFU or with undetermined inoculation level (new percentage: 22.7%). Note that for the extension study performed in 2021, 56 samples were inoculated and 24 gave a negative result representing 42.9 % of the inoculated samples.

Taking into account the initial and the renewal studies, 15.1 % of the samples were naturally contaminated.

3.1.1.3 Protocol applied during the validation study

❒ ***Incubation times***

The minimum incubation time was applied during the validation studies: 16 h at 37°C ± 1°C.

❒ ***Confirmation protocols***

The positive PCR tests were confirmed by using the whole protocol of the reference method.

In some cases, additional confirmatory tests were applied:

- Several streaking from RVS and MKTTn onto XLD, Hektoen and C8-esterase-based selective agar plates;
- MSRV (5 plates).

❒ ***Enrichment broth storage***

The enrichment broths from positive samples were stored for 72 h at 5°C ± 3°C

3.1.1.4 Tests results

Raw data per category are given in **Appendix 5** The results are given in the following table.

Table 3 – Summary of results obtained with the reference and the alternative method: All the samples - Manual Protocol

Category		PA	NA*	PD	ND**	PPND	PPNA	Total
1	Meat products	26	35	3	1	0	4	**69**
2	Fish and seafood products	31	31	0	0	0	2	**64**
3	Vegetables	30	46	0	2	0	1	**79**
4	Egg products	29	35	0	3	0	3	**70**
5	Animal feed and pet food	29	30	1	0	0	2	**62**
6	Production environmental samples	30	33	0	0	0	4	**37**
All categories		**175**	**210**	**4**	**6**	**0**	**16**	**411**

* PPNA not included ** PPND not included

3.1.1.5 Calculation of relative trueness (RT), relative sensitivity (SE) and false positive ratio (FPR)

The calculations are presented in Table 4.

Table 4 – Calculation of the relative trueness (RT), the relative sensitivity (SE) and the false positive ratio (FPR)

Qiagen *mericon*® *Salmonella* spp. - Manual DNA extraction													
Category		Type		PA	NA*	PD	ND**	PPND	PPNA	SE $_{alt}$ %	SE $_{ref}$ %	RT %	FPR %
1	Meat products	a	Raw poultry meat	8	11	1	0	0	0	100,0	88,9	95,0	0,0
		b	Raw meat products (except poultry)	6	11	2	1	0	2	88,9	77,8	86,4	18,2
		c	Delicatessen and ready to reheat products	12	13	0	0	0	2	100,0	100,0	100,0	15,4
			Total	26	35	3	1	0	4	96,7	90,0	94,2	10,3
2	Fish and seafood products	a	Raw fish	11	10	0	0	0	1	100,0	100,0	100,0	10,0
		b	Marinated, smoked	11	10	0	0	0	0	100,0	100,0	100,0	0,0
		c	Cooked products	9	11	0	0	0	1	100,0	100,0	100,0	9,1
			Total	31	31	0	0	0	2	100,0	100,0	100,0	6,1
3	Vegetables	a	Spices, aromatic herbs, cocoa	9	23	0	2	0	0	81,8	100,0	94,1	0,0
		b	Raw and mapped vegetable products	11	12	0	0	0	1	100,0	100,0	100,0	8,3
		c	Ready to eat vegetables	10	11	0	0	0	0	100,0	100,0	100,0	0,0
			Total	30	46	0	2	0	1	93,8	100,0	97,5	2,1
4	Egg products	a	Pastries	9	17	0	1	0	1	90,0	100,0	96,4	5,9
		b	Eggs and derivates	10	9	0	1	0	1	90,9	100,0	95,2	11,1
		c	Ready to eat egg-based products	10	9	0	1	0	1	90,9	100,0	95,2	11,1
			Total	29	35	0	3	0	3	90,6	100,0	95,7	7,9
5	Animal feed and pet food	a	Pet food	10	10	0	0	0	0	100,0	100,0	100,0	0,0
		b	Bone meals	12	10	0	0	0	0	100,0	100,0	100,0	0,0
		c	Cattle feed, meat for animals	7	10	1	0	0	2	100,0	87,5	95,0	20,0
			Total	29	30	1	0	0	2	100,0	96,7	98,4	6,3
6	Production environmental samples	a	Swabs	9	10	0	0	0	1	100,0	100,0	100,0	10,0
		b	Process waters	10	10	0	0	0	1	100,0	100,0	100,0	10,0
		c	Residues, dusts	11	13	0	0	0	2	100,0	100,0	100,0	15,4
			Total	30	33	0	0	0	4	100,0	100,0	100,0	10,8
All categories				**175**	**210**	**4**	**6**	**0**	**16**	96,8	97,8	97,6	7,1

* PPNA not included

** PPND not included

A summary of the results is given in Table 5.

Table 5 - Summary of results

		All categories
Sensitivity for the alternative method	$SE_{alt} = \frac{(PA+PD)}{(PA+ND+PD)} \times 100\%$	96.8 %
Sensitivity for the reference method	$SE_{ref} = \frac{(PA+ND)}{(PA+ND+PD)} \times 100\%$	97.8 %
Relative trueness	$RT = \frac{(PA+NA)}{N} \times 100\%$	97.6 %
False positive ratio for the alternative method* FP = PPNA + PPND	$FPR = \frac{(FP)}{NA} \times 100\%$	7.1 %

** With ND = ND + PPND NA = NA + PPNA*

The percentage of false positive ratio for the alternative method is relatively high (7.1% for all categories combined). The majority of the PPNA samples were observed during the initial validation study (14 samples), while only 2 PPNA were observed combining the studies performed in 2016 and 2021.

3.1.1.6 Analysis of discordant results

The negative deviations are given in Table 6 and the positive deviations in Table 7.

Negative deviations

Six negative deviations were observed. 4 samples were artificially contaminated and 2 were naturally contaminated samples. For samples tested in 2016 and 2021, the PCR was tested in triplicate and negative results were always observed.
The presence of *Salmonella* spp. was confirmed in the enrichment broth for all the samples.
The detection level of the alternative was probably not reached.

Table 6 - Negative deviations

♦	Renewal 2016, ADRIA Développement - Analyses performed according to the COFRAC accreditation
♦	Renewal study 2021, ADRIA Développement - Analyses performed according to the COFRAC accreditation

Year of analysis	Sample No	Sample	Artificial contamination		Alternative method: Qiagen *mericon*® *Salmonella* spp.					Agreement	Category	Type
					Manual protocol							
			Strain	CFU/ sample	Ct Inh	Ct Res	Test result	Conf.	Final result	MR/MA Manual		
2013	17	Beef meat	/		36.46	Ø	-	+	-	ND	1	b
2013	66	Ginger	/		28.53	Ø	-	+	-	ND	3	c
2013	**249**	**Pastry**	*S.* Enteritidis SAL 1.53	3	30.95	Ø	-	+	-	ND	4	a
2021	**4862**	**Dark chocolate 95%**	*S.* Agona Ad 1725	2,4	30,46/31,91/32,74/29,00*	Ø/Ø/Ø/Ø*	-/-/-/-	+	-	ND	4	a
2013	**303**	**Whole liquid egg**	*S.* Livingstone SAL 1.193	1	36.34	Ø	-	+	-	ND	4	b
2016	**8199**	**Mayonnaise**	S. Typhimurium Ad1484	5.4	30.63/ 31.07/ 30.63	Ø	-/-/-	+	-	ND	4	c

Positive deviations

Four positive deviations were obtained for the initial validation study performed in 2013. One sample was artificially contaminated and three were naturally contaminated (see Table 8).

Table 7 - Positive deviations

Ref	Sample	Artificial contamination		Alternative method: Qiagen *mericon® Salmonella* spp.					Agreement	Category	Type
				Manual protocol							
		Strain	CFU/ sample	Ct Inh	Ct Res	Test result	Conf.	Final result	MR/MA Manual		
30	Poultry meat	/		29.56	30.52	+	+ (1)	+	PD	1	a
11	Beef meat	/		30.28	22.62	+	+ (1)	+	PD	1	b
15	Beef meat	/		30.05	31.58	+	+ (1)	+	PD	1	b
468	**Cattle feed**	S.Gallinarum SAL 1.173	3	30.27	33.07	+	+ (1)	+	PD	5	c

(1): additional confirmatory tests applied to recover the *Salmonella* strains

The analyses of discordant results according to the EN ISO 16140-2:2016 is the following (See Table 8).

Table 8 - Analyses of discordant results

Qiagen *mericon*® *Salmonella* spp.- Manual DNA extraction											
Category		Type		PD	ND	PPND	(ND+PPND) -PD	AL	ND+PPND +PD	AL
1	Meat products	a	Raw poultry meat	1	0	0	-1		1	
		b	Raw meat products (except poultry)	2	1	0	-1		3	
		c	Delicatessen and ready to reheat products	0	0	0	0		0	
			Total	3	1	0	-2	3	4	6
2	Fish and seafood products	a	Raw fish	0	0	0	0		0	
		b	Marinated, smoked	0	0	0	0		0	
		c	Cooked products	0	0	0	0		0	
			Total	0	0	0	0	3	0	6
3	Vegetables	a	Spices, aromatic herbs, cocoa	0	2	0	2		2	
		b	raw and mapped vegetable products	0	0	0	0		0	
		c	Ready to eat vegetables	0	0	0	0		0	
			Total	0	2	0	2	3	2	6
4	Egg products	a	Pastries	0	1	0	1		1	
		b	Eggs and derivates	0	1	0	1		1	
		c	Ready to eat egg-based products	0	1	0	1		1	
			Total	0	3	0	3	3	3	6
5	Animal feed and pet food	a	Pet food	0	0	0	0		0	
		b	Bone meals	0	0	0	0		0	
		c	Cattle feed, meat for animals	1	0	0	-1		1	
			Total	1	0	0	-1	3	1	6
6	Production environmental samples	a	Swabs	0	0	0	0		0	
		b	Process waters	0	0	0	0		0	
		c	Residues, dusts	0	0	0	0		0	
			Total	0	0	0	0	3	0	6
All categories				**4**	**6**	**0**	**2**	**6**	**16**	**16**

The observed values for ((ND + PPND) - PD) and (ND + PPND + PD) meet the acceptability limit for each individual category (calculated values ≤ AL).

3.1.1.7 PCR inhibitions

414 PCR tests were run on DNA extracts; the following inhibitions were observed (see Table 9).

Table 9 - PCR inhibitions

♦ Renewal study 2016, ADRIA Développement - Analyses performed according to the COFRAC accreditation

♦ Renewal study 2021, ADRIA Développement - Analyses performed according to the COFRAC accreditation

Year of analysis	Sample N°	Product	PCR result				Category	Type
			Ct IC	Ct Target	Result	Final PCR result after dilution		
2021	**3116**	**Marinated anchovy**	34,57/28,59*	Ø/Ø*	!/-*	-	2	b
2013	93	Rosemary	Ø/30,21	Ø/-	Inh/-	-	3	a
2021	**3184**	**Sweet paprika**	39,77/28,80*	29,55/Ø*	!/-*	-	3	a
2021	**3185**	**Mild red pepper**	Ø/28,34*	34,16/Ø*	X /-*	-	3	a
2021	**3186**	**Grounded ginger**	Ø/28,87*	Ø/Ø*	X /-*	-	3	a
2021	**3187**	**Curry hot**	Ø/29,17*	Ø/Ø*	X /-*	-	3	a
2021	**3188**	**Rosemary thyme**	Ø/29,78*	Ø/Ø*	X /-*	-	3	a
2021	**3189**	**Basil**	Ø/Ø*/Ø**/ 29,15***	Ø/Ø*/Ø**/Ø***	X / X*/X**/ -***	-	3	a
2021	**3192**	**Dark chocolate 70 %**	Ø/28,99*	Ø/26,67*	X/+*	+	3	a
2021	**3193**	**Dark chocolate 70 %**	Ø/28,70*	Ø/Ø*	X /-*	-	3	a
2021	3194	Harissa mix	Ø/28,35*	Ø/Ø*	X /-*	-	3	a
2021	3195	Turmeric	Ø/28,30*	Ø/Ø*	X /-*	-	3	a
2021	3196	Gray pepper	Ø/28,37*	Ø/Ø*	X /-*	-	3	a
2021	3197	Chervil	Ø/28,77*	Ø/Ø*	X /-*	-	3	a
2021	**4860**	**Herbs of Provence**	Ø/32,65*/Ø**/ 27,38***	Ø/Ø*/Ø**/Ø***	/!*/X**/ -***	-	3	a
2021	**4861**	**Oregano**	Ø/Ø*/Ø**/ 27,74***	Ø/Ø*/Ø**/Ø***	X/X*/X**/ -***	-	3	a
2021	**4863**	**Dark chocolate 75%**	Ø/27,90*	Ø/27,54*	X/+*	+	3	a
2021	**4867**	**Sage**	Ø/26,60	Ø/20,13	X/+*	+	3	a
2021	**4868**	**Tarragon**	Ø/27,42	Ø/23,66	X/+*	+	3	a
2021	**5302**	**Sweet paprika**	39,03/28,82*	22,30/Ø*	!/-*	-	3	a
2021	**5304**	**Ground turmeric**	37,53/27,25*	Ø/18,71*	X/+*	+	3	a
2021	**5305**	**Grounded ginger**	Ø/28,64*	Ø/Ø*	X/-*	-	3	a
2016	**8190**	**Salad with dressing**	26,82/31,49*	Ø/32,80*	!/+*	+	3	c
2021	**3270**	**Eggplant caviar**	29,08/28,83	38,99/36,05	?/+	+	3	c
2013	281	Whole eggs	Ø/34,43	Ø/38,42	Inh/+	-	4	b
2013	282	Egg white	Ø/32,86	Ø/Ø	Inh/-	-	4	b
2016	**8202**	**Pasteurized whole liquid egg**	32,96/32,51*/29,75**	24,69/26,50*/ 23,42**	!/!*/+**	+	4	b
2016	**8204**	**Pasteurized yellow liquid egg**	39,99/29,54*	34,61/28,84*	!/+*	+	4	b
2016	8217	Pasteurized whole liquid egg	Ø/Ø30,89**	Ø/Ø/Ø	X/X*/-**	-	4	b
2016	8220	Mayonnaise	34,85/29,67*	Ø	!/-*	-	4	c
2016	**8211**	**Pellets for dogs**	34,67/36,47*/ 29,37**	25,72/Ø*/ 34,92**	!/!*/+**	+	5	a
2021	5203	Cattle feed	Ø/29,74*	39,75/Ø*	X/-*	-	5	c

Number of samples with inhibitions	32
% of samples showing a PCR inhibition	7,7%
Number of inhibitions removed without any dilution	4
Number of inhibitions removed using a 1:10 dilution	22
Number of inhibitions removed using a 1:50 dilution	3
Number of inhibitions removed using a 1:100 dilution	3

PCR:	Message provided by the software	Explanation
!	Sample control channel inhibited	Dilute the DNA extract 1/10
?	Sample target channel Ct undetermined	Sample result>38 test again the sample
⊗	Sample control channel not in range	Positive result
⊗	Sample control	The sample is 'out of range" but positive direction
-*		Negative PCR result diluted sample 1/10
+*		Positive PCR result diluted sample 1/10
+**		Positive PCR result diluted sample 1/50
+***		Positive PCR result diluted sample 1/100

Inhibitions were observed for 6.8 % (33 samples) of the DNA extracts. They concern mainly samples belonging to the vegetable category and specifically aromatic herbs and spices (23 samples) and egg products (5 samples).

1/10 (*) or 1/50 (**) dilutions of the DNA extracts allowed removing the inhibitions.

3.1.1.8 Confirmations

The positive PCR results were confirmed using the whole protocol of the reference method.

For five samples analysed during the initial validation study (11, 15, 30, 468 and 387), additional confirmatory tests were required to recover the *Salmonella* strain from the enrichment broth. Several streaking from RVS and MKTTn broth onto XLD, Hektoen and C8-esterase based media were applied.

For two samples analysed for the renewal study in 2016 (8214 and 8227), MRSV was inoculated (5 replicates).

3.1.2 Relative detection level

The relative level of detection is the level of detection at P = 0.50 (LOD_{50}) of the alternative (proprietary) method divided by the level of detection at P = 0.50 (LOD_{50}) of the reference method.

The RLOD is defined as the ratio of the alternative and reference methods:

$$RLOD = \frac{LOD_{Alt.}}{LOD_{Ref.}}$$

The relative detection level is the smallest number of culturable micro-organisms that can be detected in the sample in 50% of occasions by the alternative and reference methods.

3.1.2.1 Experimental design

Five matrix/strain pairs were tested using the following protocol:

- 6 non-spiked samples,
- 6 samples inoculated at a level required to get 0 to 50 % positive samples,
- 6 samples inoculated at a level required to get 50 to 75 % positive samples,
- 6 samples inoculated at a level required to get 75 to 100 % positive samples.

The samples were analysed by the reference and the alternative methods, and the background flora was enumerated.

An additional matrix/strain pair was tested in order to represent the vegetables category: bagged spinach inoculated with *Salmonella* Virchow F276 was tested using the protocol described in the ISO 16140-2 (2016):

- A negative control: 5 samples,
- A low contamination level providing fractional recovery data, with 20 replicates,
- A high contamination level, with 5 replicates.

The following matrix/strains have already been tested (see table 10).

Table 10 - Matrix/strain pairs tested

Category		Matrix	Strain	ISHA code	Origin
1	**Meat products**	Minced meat	*S.* Typhimurium	SAL.1.133	Raw minced meat
2	**Fish and seafood products**	Raw fish	*S.* London	SAL.1.80	Shelled winkle
3	**Vegetables**	Bagged spinach	*S.* Virchow	F276	Curry
4	**Egg products**	Egg	*S.* Enteritidis	SAL.1.48	Egg product
5	**Animal feed and pet food**	Cat food	*S.* Infantis	SAL.1.69	Bone meal
6	**Production environmental samples**	Process water	*S.* Mbandaka	SAL.1.85	Young guinea fowl

3.1.2.2 Calculation and interpretation of the RLOD

The raw data are given in **Appendix 6.**

The RLOD calculations were performed using the Excel spreadsheet available at http://standards.iso.org/iso/16140 - RLOD (clause 5-1-4-2 Calculation and interpretation of RLOD) version 06.07.2015 (See Table 11).

Table 11 - Presentation of the RLOD before and after confirmation of the alternative method results

Qiagen *mericon*® *Salmonella* spp. - Manual DNA extraction								
Category	Matrix / strain pair	RLOD	RLODL	RLODU	b=ln(RLOD)	sd(b)	z-Test statistic	p-value
1	Minced meat *Salmonella* Typhimurium SAL.1.133	0.850	0.300	2.409	-0.162	0.521	0.311	1.244
2	Raw fish *Salmonella* London SAL.1.80	1.000	0.344	2.903	0.000	0.533	0.000	1.000
3	Bagged spinach *Salmonella* Virchow F276	1,000	0,447	2,240	0,000	0,403	0,000	1,000
4	Egg product Salmonella Enteritidis SAL.1.48	1.179	0.439	3.169	0.165	0.494	0.334	0.739
5	Cat feed *Salmonella* Infantis SAL.1.69	1.262	0.607	2.625	0.233	0.366	0.635	0.525
6	Process water / *Salmonella* Mbandaka SAL.1.85	1.000	0.368	2.718	0.000	0.500	0.000	1.000
Combined		**1,029**	**0,679**	**1,562**	**0,029**	**0,208**	**0,139**	**0,889**

The RLOD values meet the acceptability limit (AL) fixed at 1.5 for a paired study design for the six tested matrix/strain pairs.

The $LOD_{50\,\%}$ calculations according to Wilrich & Wilrich POD-LOD calculation program - version 9, 2017-09-23 test are given in Table 12.

Table 12 - LOD_{50} results

Qiagen *mericon*® *Salmonella* spp. - Manual DNA extraction			
Category	**Matrix/ strain pair**	**Level of detection at 50% (CFU / test portion) according to Wilrich & Wilrich[1]**	
		Reference method	**Alternative method**
1	Minced meat *Salmonella* Typhimurium SAL.1.133	1,478 [0,812;2,690]	1,225 [0,677;2,217]
2	Raw fish *Salmonella* London SAL.1.80	1,031 [0,554;1,916]	1,031 [0,554;1,916]
3	Bagged spinach *Salmonella* Virchow F276	1,099 [0,641;1,883]	1,099 [0,641;1,883]
4	Egg product Salmonella Enteritidis SAL.1.48	0,578 [0,326;1,024]	0,670 [0,376;1,193]
5	Cat feed *Salmonella* Infantis SAL.1.69	0,281 [0,148;0,534]	0,471 [0,256;0,866]
6	Process water / *Salmonella* Mbandaka SAL.1.85	0,732 [0,370;1,371]	0,732 [0,390;1,371]
Combined results		**0,815 [0,640;1,037]**	**0,783 [0,597;1,026]**

The LOD_{50} varies from 0.3 to 1.5 CFU/test portion for the reference method and from 0.5 to 1.2 CFU/ test portion for the alternative method.

[1] Wilrich, C., and P.-Th. Wilrich: Estimation of the POD function and the LOD of a qualitative microbiological measurement method. AOAC International **92** (2009) 1763 - 1772.

3.1.3 Inclusivity / exclusivity

The inclusivity is the ability of the alternative method to detect the target analyte from a wide range of strains. The exclusivity is the lack of interference from a relevant range of non-target strains of the alternative method.

Inclusivity and exclusivity studies were run for AFNOR and AOAC validation; the 2 studies are presented in this report.

3.1.3.1 AFNOR

3.1.3.1.1 Test protocols

- **Inclusivity**

Each *Salmonella* strain was cultivated twice before inoculation in pre-warmed BPW (about 1 to 100 CFU/225 mL). The complete protocol of alternative method was applied (incubation time: 16 h at 37°C).

- **Exclusivity**

Each non-target strain was cultivated twice before inoculation in growth medium (Trypticase Soy Broth) with a level of contamination expected to occur in the food matrices (about 10^5 CFU/mL). After 20 hours of incubation, the mericon *Salmonella* test was performed.

3.1.3.1.2 Results

Raw data are given in **Appendix 7**.

- **Inclusivity**

53 *Salmonella* strains were tested in 2013; 16 additional strains were tested for the renewal study to fulfil the AFNOR technical rules requirements (revision 5); all gave a positive PCR test.

- **Exclusivity**

30 non-target strains were tested. No cross reaction was observed.

3.1.3.2 AOAC

3.1.3.2.1 Test protocols

- **Inclusivity**

103 strains of *Salmonella* spp. were cultured in BPW for 18 h ± 2 h at 37°C ± 1°C. The BPW culture tubes were diluted to 10x the limit of detection (5 x 10^3) and analysed with the *mericon* Salmonella spp. kit using the manual *mericon* DNA extraction procedure.

- **Exclusivity**

31 non-target strains were grown in BHI and incubated at temperatures and conditions for optimal growth.

Inclusivity and exclusivity cultures were randomised and blind-coded and tested without dilution by the *mericon Salmonella* spp. kit using the manual *mericon* DNA extraction procedure.

3.1.3.2.2 Results

Raw data are given in **Appendix 8**.

- **Inclusivity**

All the *Salmonella* strain tested gave a positive PCR result.

- **Exclusivity**

None of the 31 exclusivity strains analysed were detected by the alternative method.

3.1.3.3 Conclusion

Taking into account the two studies (AFNOR and AOAC), the 100 strains required by the AFNOR technical rules were tested.

The alternative method is specific and selective.

3.2 Practicability

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

Storage conditions, shelf-life and modalities of utilisation after first use	• Fast Lysis Buffer: storage à 15-25°C until expiration date • mericon Assay: storage at 2-8°C until expiration date • Positive Control DNA: storage at 2-8 °C until expiration date • Multiplex PCR master mix: storage at -20°C until expiration date • Quantitect nucleic acid dilution buffer (negative control) : storage à -20°C until expiration date • RNase-free water: storage at -20°C until expiration date		
Time to result	Steps	**Reference method**	**Alternative method**
	Negative samples		
	Sample enrichment (BPW)	Day 0	Day 0
	Selective enrichment (RVS and MKTTn)	Day 1	/
	mericon extraction	/	Day 1
	mericon detection	/	Day 1
	Isolation on selective agar media	Day 2 - Day 3*	/
	Reading	Day 3 - Day 4*	/
	Final result	Day 3 - Day4*	Day 1
	Presumptive positive or positive results		
	Sample enrichment (BPW)	Day 0	Day 0
	Selective enrichment (RVS and MKTTn)	Day 1	/
	mericon extraction	/	Day 1
	mericon detection	/	Day 1
	Selective enrichment (RVS and MKTTn)	/	Day 1
	Isolation on selective agar media	Day 2 - Day 3*	Day 2 - Day 3*
	Reading and purification	Day 3 - Day 4*	Day 3 - Day 4*
	Confirmation	Day 5 - Day 6*	Day 5 - Day 6*
	Final result	**Day 5 - Day6***	**Day 5 - Day 6***
Common step with the reference method	Enrichment step		

*: Cheese and low moisture dairy products

The negative results are available in 1 day using the maricon Salmonella method while 3 or 4 days are required using the ISO 6579-1 method. The confirmed positive results are available in 5 or 6 days for both methods.

3.3 Inter-laboratory study (ISHA, 2013)

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

3.3.1 Study organisation

13 laboratories participated to the study.

Minced meat was inoculated with a *Salmonella* Enteritidis strain (ISHA code: SAL 1.50) isolated from beef meat.

The targeted inoculation levels were:

- 0 CFU/25 g,
- 5 CFU/25 g,
- 25 CFU/25 g.

The matrix was distributed in sterile bags (25 g). Every bag was individually spiked and homogenized. Eight samples per level, per laboratory and per method were prepared. Each laboratory received 24 samples to analyse, 1 sample to quantify the endogenous microflora and 1 water sample containing a temperature probe.

3.3.2 Experimental parameters controls

3.3.2.1 Sample stability

- **Contamination levels before inoculation**

The absence of *Salmonella* spp. was verified in the batch of minced meat used before spiking using the reference method.

The contamination levels were (See Table 13):

Table 13 - Contamination levels

Level	Samples	Theoretical target level	True level (CFU/25 g sample)	Low limit / CFU/25 g sample	High limit / CFU/25 g sample
Level 0	1 - 2 - 7 - 11- 14 - 15 - 18 - 20	0	/	/	/
Low level	3 - 4 - 10 - 13 - 16 - 17 - 21 - 24	5	4	0	8
High level	5- 6 - 8 - 9 - 12 - 19 - 22 - 23	25	32	21	44

Strain stability during transport

One sample inoculated at a high level (130 CFU/g) was tested for enumeration after 24 h, 48 h and 72 h storage. One sample inoculated at a low level was tested for detection after 24 h, 48 h and 72 h storage (See Table 14).

Table 14 – *Salmonella* stability in the matrix

Day	Enumeration (CFU/g)	Alternative method (25 g)	Reference method (25 g)
D0	130	Detected	Detected
D+1	100	Detected	Detected
D+2	130	Detected	Detected
D+3	100	Detected	Detected

No evolution was observed during storage for 3 days at 5°C ± 3°C.

3.3.2.2 Logistic conditions

The temperatures measured at reception by the Labs, the temperatures registered by the thermo-probe, and the receipt dates are given in Table 15.

Table 15 - Sample temperatures at receipt

Laboratories	Temperature measured at receipt (°C)	Temperature measured by the probe during shipment	Analysis date
A	3.9	1.9	21/01/2013
B	2.5	0.2	21/01/2013
C	1.5	-0.1	21/01/2013
D	**9.0**	1.1	21/01/2013
E	4.0	1.5	21/01/2013
F	2.0	1.9	21/01/2013
G	5.9	1.3	21/01/2013
H	4.2	1.9	21/01/2013
I	0.5	0.1	21/01/2013
J	2.9	0.0	21/01/2013
K	3.5	1.0	21/01/2013
L	2.4	1.0	21/01/2013
M	4.7	0.0	21/01/2013

The temperature measurements were below 8.4°C for 12 laboratories. For one laboratory (D), the temperature at reception measured by the Lab was 9.0°C. The temperature probe indicated correct mean temperatures between the shipping and the reception of the samples for this laboratory.

3.3.3 Result analysis

The raw data are given in **Appendix 9**.

3.3.3.1 Results obtained by the expert Lab.

The results obtained by the expert Lab. are the following (See table 16).

Table 16 – Results obtained by the expert Lab.

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

PCR inhibitions were observed for 4 samples (1, 2, 11 and 12). The 1/10 dilution of the DNA extract allowed to obtain a PCR result.

3.3.3.2 Results obtained by the collaborators

Samples were sent to 13 collaborators.

- **Mesophilic aerobic flora**

The enumeration of the mesophilic aerobic flora varies from 1200 to 1.2 x 10^8 CFU/g.

- ***Salmonella* spp. detection**

The results obtained for the reference and the alternative methods are provided in table 17 (reference method) and table 18 (alternative method).

Table 17 - Positive results by the reference method (all the labs)

Laboratory	Level contamination		
	L0	L1	L2
A	0	8	8
B	0	7	8
C	0	8	8
D	0	8	8
E	0	7	8
F	0	8	8
G	0	8	8
H	0	8	8
I	0	8	8
J	0	8	8
K	0	8	8
L	0	8	8
M	0	7	8
Total	**P_0 = 0**	**P_1 = 101**	**P_2 = 104**

Table 18 - Positive results (before and after confirmation) by the alternative method (all the labs)

Laboratory	Level contamination					
	L0		L1		L2	
	Before confirmation	*After confirmation*	*Before confirmation*	*After confirmation*	*Before confirmation*	*After confirmation*
A	0	0	8	8	8	8
B	0	0	7	7	8	8
C	0	0	8	8	8	8
D	3	0	8	8	8	8
E	2	0	6	6	8	8
F	0	0	8	8	8	8
G	0	0	8	8	8	8
H	0	0	8	8	8	8
I	2	0	8	8	8	8
J	No result x8	0	4 (No result x2)	4 (No result x2)	7 (No resultx1)	7 (No resultx1)
K	1	0	8	8	8	8
L	0	0	8	8	8	8
M	0	0	7	7	8	8
Total	**P_0 = 8**	**CP_0 = 0**	**P_1 = 96 (No result x2)**	**CP_1 = 96 (No resultx2)**	**P_2 = 103 (No result x1)**	**CP_2 =103 (No result x1)**

No result: no PCR result due to PCR inhibition

PCR inhibitions were observed for 4 Labs; they are listed in table 19.

Table 19 - PCR inhibitions

Laboratory	Number of PCR inhibitions observed			Total
	Level 0	Level 1	Level 2	
H	6	1	2	9
J	6	2	1	9
K	4	0	0	4
C	4	6	7	17
Total	**20**	**9**	**10**	**39**

Lab H proceeded to a new extraction on the enrichment broth for 3 samples only (H10, H19 and H22). It did not apply dilution on the DNA extract.

Lab J did not run any additional testing.

Labs K and F proceeded to dilutions on the DNA extracts and run again the PCR test.

The results from Labs H and J were not kept for interpretation as they did not respect the protocol.

3.3.3.3 Results of the Labs retained for interpretation

Finally, the results from 11 Labs were kept: A, B, C, D, E, F, G, I, K, L and M. A summary of the results is provided in Table 20 and Table 21.

Table 20 - Positive results by the reference method (Without Labs H and J)

Laboratory	Level contamination		
	L0	L1	L2
A	0	8	8
B	0	7	8
C	0	8	8
D	0	8	8
E	0	7	8
F	0	8	8
G	0	8	8
I	0	8	8
K	0	8	8
L	0	8	8
M	0	7	8
Total	**P_0 = 0**	**P_1 = 85**	**P_2 = 88**

Table 21 - Positive results (before and after confirmation) by the alternative method (Without Labs H and J)

Laboratory	Level contamination					
	L0		L1		L2	
	Before confirmation	*After confirmation*	*Before confirmation*	*After confirmation*	*Before confirmation*	*After confirmation*
A	0	0	8	8	8	8
B	0	0	7	7	8	8
C	0	0	8	8	8	8
D	3	0	8	8	8	8
E	2	0	6	6	8	8
F	0	0	8	8	8	8
G	0	0	8	8	8	8
I	2	0	8	8	8	8
K	1	0	8	8	8	8
L	0	0	8	8	8	8
M	0	0	7	7	8	8
Total	**P_0 = 8**	**CP_0 = 0**	**P_1 = 84**	**CP_1 = 84**	**P_2 = 88**	**CP_2 = 88**

3.3.4 Calculation and interpretation

3.3.4.1 Calculation of the specificity percentage (SP

The percentage specificities (SP) of the reference method and of the alternative method, using the data after confirmation, based on the results of level L0 are the following (See Table 22).

Table 22 - Percentage specificity

Specificity for the reference method	$SP_{ref} = \left(1 - \left(\frac{P_0}{N_}\right)\right) x\ 100\ \% =$	100 %
Specificity for the alternative method	$SP_{alt} = \left(1 - \left(\frac{CP_0}{N_}\right)\right) x\ 100\ \% =$	100 %

N: number of all L0 tests

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

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

3.3.4.2 Calculation of the sensitivity (SE_{alt}), the sensitivity for the reference method (SE_{ref}), the relative trueness (RT) and the false positive ratio for the alternative method (FPR)

With the 11 collaborators retained for interpretation and taking into account the results obtained for Level 1 (level for which fractional recoveries was observed), the summary is the following (See Table 23).

Table 23 - Summary of the obtained results with the reference method and the alternative method for Level 1

Response	Reference method positive (R+)	Reference method negative (R-)
Alternative method positive (A+)	Positive agreement (A+/R+) **PA = 85**	Positive deviation (R-/A+) **PD = 0**
Alternative method negative (A-)	Negative deviation (A-/R+) **ND = 1 (PPND = 0)**	Negative agreement (A-/R-) **NA = 2 (PPNA = 0)**

Based on the data summarized in Table 23, the values of sensitivity of the alternative and reference methods, as well as the relative trueness and false positive ratio for the alternative method taking account the confirmations, are the following (See Table 24):

Table 24 - Sensitivity, relative trueness and false positive ratio percentages

Sensitivity for the alternative method:	$SE_{alt} = \frac{(PA+PD)}{(PA+PD+ND)} x\ 100\% =$	98.8 %
Sensitivity for the reference method:	$SE_{ref} = \frac{(PA+ND)}{(PA+PD+ND)} x\ 100\% =$	100.0 %
Relative trueness	$RT = \frac{(PA+NA)}{N} x\ 100\% =$	98.9 %
False positive ratio for the alternative method	$FPR = \frac{FP}{NA} x\ 100\% =$	0 %

3.3.4.3 Interpretation of data

For a **paired study design**, the difference between (ND – PD) and the addition (ND + PD) are calculated for the level(s) where fractional recovery is obtained (so L_1 and possibly L_2). The observed value found for (ND – PD) and (ND + PD) shall not be higher than the AL.

For 11 Labs, the limits are the following:

	Calculated values	AL	Conclusion
ND - PD	1	3	ND - PD < AL
ND + PD	1	4	ND + PD < AL

The EN ISO 16140-2:2016 requirements are fulfilled as (ND - PD) and (ND + PD) meet the AL.

There is indeed no difference between the sensitivity of the compared methods, and the alternative method complies with the reproducibility conditions.

3.3.5 Evaluation of the LOD $_{50\%}$, LOD $_{95\ \%}$ and RLOD between laboratories

The RLOD was calculated using the EN ISO 16140-2:2016 Excel spreadsheet available at https://standards.iso.org/iso/16140/-5/ed-1/en/RLOD_inter-lab-study_16140-2_AnnexF_ver1_28-06-2017.xls. The results are used only for information (see Table 25).

Table 25 - LOD $_{50\%}$, LOD $_{95\ \%}$ and RLOD

Method	LOD 50%	LOD 95%	RLOD
Reference	0,82 [0,59;1,15]	3,55 [2,53;4,96]	1,09 [0,75;1,6]
Alternative	0,90 [0,65;1,23]	3,88 [2,83;5,32]	

3.4 General conclusion

The **methods comparative study conclusions** are:

☒ The method comparison study scheme corresponds to a PAIRED STUDY design as the alternative and reference methods have common enrichment procedures.

☒ In the sensitivity study, 4 food categories, animal feed and pet food, and production environmental samples were tested.

The alternative method shows respectively 4 positive deviations (PD) and 6 negative deviations (ND) for the five combined categories. The observed values for ((ND + PPND) - PD) and (ND + PPND + PD) meet the acceptability limits (AL) for each individual category and for all combined categories.

☒ The RLOD meet the AL fixed at 1.5 for a paired study design for all the tested matrix/strain pairs.

☒ For the inclusivity study, all the Salmonella strain tested gave a positive PCR result.

☒ For the exclusivity study, no cross reaction was observed on the tested strains.

☒ The negative results are obtained in one day, while three to four days are required with the reference method. The positive results are obtained in five to six days with the alternative and the reference methods.

☒ The alternative method fulfils all the EN ISO 16140-2:2016 and AFNOR technical rules requirements except for the dairy products category.

According to the results obtained for the sensitivity study, the renewal of the certificate concerns only the following categories:

- **Meat products**
- **Fish and seafood products**
- **Vegetables**
- **Egg products**
- **Animal feed and pet food**
- **Production environmental samples**

The **inter-laboratory study conclusions** are:

☒ The data and interpretations comply with the EN ISO 16140-2:2016 requirements. The alternative method is considered equivalent to the ISO standard.

Quimper, 06 January 2022

Maryse RANNOU
Project Manager
Validation of Alternative methods
Food Safety & Quality

I hereby attest to the validation of the verification of the conformity of the report (opinion and interpretation).

Appendix 1 - Flow diagram of the alternative method: Qiagen *mericon® Salmonella* spp.

STEP 1: ENRICHMENT

X g sample + 9 X mL buffered peptone water

Incubation for 18±2 h at 37±1 °C

STEP 2: DNA EXTRACTION AND PURIFICATION

Manual DNA extraction and purification

Sampling of 1.0 mL of culture in a 2 mL-Eppendorf tube

Thermal Lysis and centrifugation

STEP 3: DNA AMPLIFICATION

Transfer of the extracts in the Rotor-Gene Q

DNA amplification

STEP 4: RESULTS READING

Rotor-GeneQ Software V2.2.2.9. (Initial validation study)

or V2.3.1. build 49 (Renewal validation study)

Display of the results

Dilute 1:10 or 1:50 if internal control inhibited

STEP 5: CONFIRMATION OF PRESUMED POSITIVE SAMPLES

The complete protocol of the reference method is applied on enriched BPW broths

Appendix 2 - Flow diagram of the reference method

ISO 6579-1 (February 2017): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.
ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSRV and SC

25 g of sample + 225 ml BPW
or 375 g of sample + 3 375 ml pre-warmed BPW
or specific enrichment according to ISO 6887 parts
For chocolates and cocoa based product: xg + 9 x ml UHT skimmed milk[2]
1 swab + 10 ml BPW[3]
1 sponge + 100 ml BPW
1 wipe + 225 ml BPW

↓

Incubation
18 h ± 2 h at 34 - 38°C

0.1 ml BPW + 10 ml RVS Incubation 24 h ± 3 h at 41.5°C ± 1°C if negative or doubtful result incubate for additional 24 h Incubation 48 h ± 3 h at 41.5°C ± 1°C for low moisture dairy products and cheeses	1 ml BPW + 10 ml MKTTn Incubation 24 h ± 3 h at 34-38°C Incubation 48 h ± 3 h at 34-38°C for low moisture dairy products and cheeses

Streak on XLD and Chromogenic Agar

↓

Incubation for 24 h ± 3 h at 34-38°C for XLD
24 h ± 3 h following the recommendation of the manufacturer

↓

Test one characteristic colony
(Take 4 other colonies if the first one is negative)

↓

Non-selective agar plate
Incubation for 24 h ± 3 h at 34 - 38°C

Biochemical test — Serological test

Result

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[2] For chocolates products containing > 20 % fat, unless the products already contain sufficient emulsifier, add Tween 80
For products with high background microflora add Brilliant green (0.018g/L)

[3] For sampling after cleaning process premoisten
- 1 swab + 1 ml broth universal neutralizing (+ 9 ml BPW)
- 1 sponge + 10 ml broth universal neutralizing (+ 90 ml BPW)
- 1 wipe + BPW + 10 % neutralizing agent (+ 225 ml BPW)

Appendix 3 - Artificial contamination of the samples (Initial validation study, ISHA -2013 and extension study, ADRIA Développement - 2016, 2021)

♦ Renewal study 2016, ADRIA Développement - Analyses performed according to the COFRAC accreditation
♦ Renewal study 2021, ADRIA Développement - Analyses performed according to the COFRAC accreditation

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	54	**Chicken liver**	*S.* arizonae SAL1.8	Duck	52°C for 45 min	1,5	<1	+	1	a
2013	55	**Poultry sausages**	*S.* Orion SAL1.101	Duck	(freezing at -20°C / thawing amb. Temp.)x2	0.8	9	+	1	a
2013	97	**Smoked poultry**	*S.* Hadar SAL1.57	Poultry escalope	(freezing at -20°C / thawing amb. Temp.) x2	0.6	6	+	1	a
2013	113	**Ready to reheat duck**	*S.* arizonae SAL1.8	Duck	52°C for 45 min	1.5	3	+	1	a
2013	128	**Ready to reheat poultry**	*S.* Kedougou SAL1.169	Pork	(-80°C for 20 min / 56°C for 20 min) x 2	0.9	30	+	1	a
2013	53	**Raw turkey escalope**	*S.* arizonae SAL1.8	Duck	52°C for 45 min	1.5	<1	-	1	a
2013	60	**Minced meat**	*S.* Virchow SAL1.158	/	52°C for 45 min	2.3	5	+	1	b
2013	61	**Frozen chopped steak**	*S.* Virchow SAL1.158	/	52°C for 45 min	2.3	5	+	1	b
2013	114	**Raw lamb meat**	*S.* Manhattan SAL1.84	Bovine industry	(-80°C for 20 min / 56°C for 20 min) x 2	0.7	4	+	1	b
2013	95	**Smoked veal**	*S.* Manhattan SAL1.84	Bovine industry	(-80°C for 20 min / 56°C for 20 min) x 2	0.7	4	+	1	c
2013	98	**Sliced ham**	*S.* Derby SAL1.29	Pork	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	2	+	1	c
2013	99	**Ham**	*S.* Derby SAL1.29	Pork	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	2	+	1	c
2013	125	**Delicatessen**	*S.* arizonae SAL1.6	Dried sausage	52°C for 45 min	2.2	8	+	1	c
2013	126	**Merguez**	*S.* Manhattan SAL1.84	Bovine industry	(-80°C for 20 min / 56°C for 20 min) x 2	0.7	4	+	1	c
2013	132	**Ready to reheat beef (goulash)**	*S.* Manhattan SAL1.84	Bovine industry	(-80°C for 20 min / 56°C for 20 min) x 2	0.7	4	+	1	c

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	**325**	**Chicken delicatessen**	*S.* Bredeney SAL 1.21	Chicken	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	2	+	1	c
2013	**329**	**Ready to eat meal with chicken and pepper**	*S.* Bazenheid SAL 1.71	Kebab	-80°C for 10 min + 55°C for 30 min	0.5	2	+	1	c
2013	**330**	**Ready to eat meal with chicken and pistachio**	*S.* Bazenheid SAL 1.71	Kebab	-80°C for 10 min + 55°C for 30 min	0.5	2	+	1	c
2013	**331**	**Ready to eat meal with veal**	*S.* Bazenheid SAL 1.71	Kebab	-80°C for 10 min + 55°C for 30 min	0.5	2	+	1	c
2013	**119**	**Raw salmon fillet**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**122**	**Fish**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**131**	**Tuna sushi**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**133**	**Saithe fillet**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**134**	**Swordfish loin**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**135**	**Raw shrimps**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	+	2	a
2013	**237**	**Whiting fillet**	*S.* Regent SAL 1.186	Fish bread	(-80°C for 15 min / 50°C for 15 min) x 2	0.7	4	+	2	a
2013	**238**	**Red-mullet fillet**	*S.* diarizonae SAL 1.187	Cooked shrimps	-80°C for 10 min + 55°C for 30 min	1.2	1	+	2	a
2013	**240**	**Trout fillet**	*S.* diarizonae SAL 1.187	Cooked shrimps	-80°C for 10 min + 55°C for 30 min	1.2	1	+	2	a
2013	**332**	**Ray wing**	*S.* Enteritidis SAL 1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	7	+	2	a
2013	**333**	**Cuttelfish**	*S.* Enteritidis SAL 1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	7	+	2	a
2013	**120**	**Raw thuna filet**	*S.* Enteritidis SAL1.51	Mussels	(freezing at -20°C / thawing amb. Temp.)x2	0.8	6	-	2	a
2021	**3112**	**Smoked herring**	*S.* Indiana Ad1409	Marinated fish	Seeding 48h 2-8°C	/	3-2-3-4-3(3,0)	+	2	b
2021	**3113**	**Smoked trout**	*S.* Wandsworth Ad2335	Fish fillet	Seeding 48h 2-8°C	/	4-1-0-3-2 (2,0)	+	2	b

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2021	3114	**Smoked salmon**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	b
2021	3115	**Smoked trout**	*S.* Saintpaul F31	Fish fillet	Seeding 48h 2-8°C	/	1-3-3-4-6 (3,4)	+	2	b
2021	3116	**Marinated anchovy**	*S.* Indiana Ad1409	Marinated fish	Seeding 48h 2-8°C	/	3-2-3-4-5(3,4)	-	2	b
2021	3117	**Marinated anchovy**	*S.* Wandsworth Ad2335	Fish fillet	Seeding 48h 2-8°C	/	4-1-0-3-2 (2,0)	-	2	b
2021	3118	**Marinated fish**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	b
2021	3119	**Marinated herring**	*S.* Saintpaul F31	Fish fillet	Seeding 48h 2-8°C	/	1-3-3-4-6 (3,4)	-	2	b
2021	3120	**Salmon sushi**	*S.* Indiana Ad1409	Marinated fish	Seeding 48h 2-8°C	/	3-2-3-4-3(3,0)	+	2	b
2021	3121	**Shrimp sushi**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	b
2021	3122	**Maki salmon**	*S.* Wandsworth Ad2335	Fish fillet	Seeding 48h 2-8°C	/	4-1-0-3-2 (2,0)	-	2	b
2021	3123	**Maki tuna**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	b
2021	4518	**Smoked haddock fillet**	*S.* Derby Ad1093	Fish fillet	Seeding 48h 2-8°C	/	2-1-3-2-4 (2,4)	+	2	b
2021	4519	**Smoked sea trout**	*S.* Brandenburg Ad351	Seafood cocktail	Seeding 48h 2-8°C	/	0-4-1-4-1 (2,0)	+	2	b
2021	4520	**Marinade of sardines with herbs of Provence**	*S.* Urbana Ad2334	Frozen shrimp	Seeding 48h 2-8°C	/	1-2-1-2-1 (1,4)	+	2	b
2021	3124	**Surimi**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	c
2021	3125	**Surimi**	*S.* Saintpaul F31	Fish fillet	Seeding 48h 2-8°C	/	1-3-3-4-6 (3,4)	+	2	c
2021	3126	**Salmon terrine**	*S.* Anatum Ad1451	Fish fillet	Seeding 48h 2-8°C	/	3-1-3-2-4 (2,6)	+	2	c
2021	3127	**Hake rillettes**	*S.* Wandsworth Ad2335	Fish fillet	Seeding 48h 2-8°C	/	4-1-0-3-2 (2,0)	-	2	c
2021	3128	**Salmon terrine**	*S.* Indiana Ad1409	Marinated fish	Seeding 48h 2-8°C	/	3-2-3-4-3(3,0)	-	2	c
2021	3129	**Norway lobster rillettes**	*S.* Anatum Ad2727	Crab	Seeding 48h 2-8°C	/	0-0-4-4-2(2,0)	+	2	c
2021	3130	**Crab rillettes**	*S.* Anatum Ad2727	Crab	Seeding 48h 2-8°C	/	0-0-4-4-2(2,0)	+	2	c
2021	3131	**Scallop rillettes**	*S.* Senftenberg Ad355	Seafood cocktail	Seeding 48h 2-8°C	/	4-1-0-3-2 (2,0)	+	2	c
2021	4521	**Mackerel rillettes**	*S.* Derby Ad1093	Fish fillet	Seeding 48h 2-8°C	/	2-1-3-2-4 (2,4)	-	2	c
2021	4522	**Salmon terrine**	*S.* Brandenburg Ad351	Seafood cocktail	Seeding 48h 2-8°C	/	0-4-1-4-1 (2,0)	-	2	c
2021	4523	**Salmon rillettes**	*S.* Urbana Ad2334	Frozen shrimp	Seeding 48h 2-8°C	/	1-2-1-2-1 (1,4)	+	2	c
2016	8186	**Pepper**	S. Virchow Ad2569	Zucchini	Seeding 48h 2-8°C	/	2-3-1-0-2 (1,6)	-	3	a
2021	3184	**Sweet paprika**	*S.* Caracas Ad 2322	Spices	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,8	-	3	a

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2021	3185	**Mild red pepper**	*S.* Virchow F276	Spices: curry	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,4	-	3	a
2021	3186	**Grounded ginger**	*S.* Odozi Ad 2860	Cocoa bean	Lyophilised strain Seeding 2 weeks ambient temperature	/	1,2	-	3	a
2021	3187	**Cury hot**	*S.* Typhimurium Ad2034	Cocoa bean	Lyophilised strain Seeding 2 weeks ambient temperature	/	0,4	-	3	a
2021	3188	**Rosemary thyme**	*S.* Caracas Ad 2322	Spices	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,8	-	3	a
2021	3189	**Basil**	*S.* Virchow F276	Spices: curry	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,4	-	3	a
2021	3190	**Chive**	*S.* Caracas Ad 2322	Spices	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,8	+	3	a
2021	3191	**Parsley**	*S.* Virchow F276	Spices: curry	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,4	-	3	a
2021	3192	**Dark chocolate 70 %**	*S.* Odozi Ad 2860	Cocoa bean	Lyophilised strain Seeding 2 weeks ambient temperature	/	1,2	+	3	a
2021	3193	**Dark chocolate 70 %**	*S.* Typhimurium Ad2034	Cocoa bean	Lyophilised strain Seeding 2 weeks ambient temperature	/	0,4	-	3	a
2021	4859	**Ground cumin**	*S.* Havana Ad2728	Sunflower	Lyophilised strain Seeding 2 weeks ambient temperature	/	3,5	-	3	a
2021	4860	**Herbs of Provence**	*S.* Kasenyi Ad 2921	Fine leek shoots	Lyophilised strain Seeding 2 weeks ambient temperature	/	1,5	-	3	a

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2021	**4861**	**Oregano**	*S.* Panama Ad1733	Infant cereals	Lyophilised strain Seeding 2 weeks ambient temperature	/	6	-	3	a
2021	**4862**	**Dark chocolate 95 %**	*S.* Agona Ad 1725	Infant cereals	Lyophilised strain Seeding 2 weeks ambient temperature	/	2,4	+	3	a
2021	**4863**	**Dark chocolate 75%**	*S.* Havana Ad2728	Sunflower	Lyophilised strain Seeding 2 weeks ambient temperature	/	3,5	+	3	a
2021	**4865**	**Dill**	*S.* Panama Ad1733	Infant cereals	Lyophilised strain Seeding 2 weeks ambient temperature	/	6	+	3	a
2021	**4867**	**Sage**	*S.* Havana Ad2728	Sunflower	Lyophilised strain Seeding 2 weeks ambient temperature	/	3,5	+	3	a
2021	**4868**	**Tarragon**	*S.* Kasenyi Ad 2921	Fine leek shoots	Lyophilised strain Seeding 2 weeks ambient temperature	/	1,5	+	3	a
2021	**5302**	**Sweet paprika**	S. Oranienburg Ad 1724	Infant cereals	Spiking HT 56°C 8min	0,8	1-5-3-4-2 (3,0)	-	3	a
2021	**5303**	**Ground cumin**	S. Virchow Ad 1721	Infant cereals	Spiking HT 56°C 8min	0,5	2-1-2-3-4 (2,4)	-	3	a
2021	**5304**	**Ground turmeric**	*S.* Derby Ad 3057	Spinach	Spiking HT 56°C 8min	0,9	4-3-4-4-2 (3,4)	+	3	a
2021	**5305**	**Grounded ginger**	S. Oranienburg Ad 1724	Infant cereals	Spiking HT 56°C 8min	0,8	1-5-3-4-2 (3,0)	-	3	a
2013	**121**	**Carrots and beans**	*S.* Kottbus SAL1.75	Mixed vegetables	(freezing at -20°C / thawing amb. Temp.)x2	1.0	3	+	3	b
2013	**285**	**Cucumber**	*S.* Dugbe SAL 1.45	Vegetables	-80°C for 10 min + 55°C for 30 min	1.1	22	+	3	b
2013	**286**	**Grated red cubbage**	*S.* Dugbe SAL 1.45	Vegetables	-80°C for 10 min + 55°C for 30 min	1.1	22	+	3	b
2013	**117**	**Green beans**	*S.* Kaneshie SAL 1.72	Vegetables	(freezing at -20°C / thawing amb. Temp.) x 2	0.7	1	-	3	b
2013	**464**	**Alfalfa**	*S.* Kedougou SAL 1.74	Bone meal	Spiking 56°C 30 min	0.7	6	+	3	b
2016	**8185**	**Salad**	S. Virchow Ad2569	Zucchini	Seeding 48h 2-8°C	/	2-3-1-0-2 (1,6)	+	3	b
2016	**8187**	**Leeks**	S. Ovakam Ad1647	Compost	Seeding 48h 2-8°C	/	1-1-0-0-2 (0,8)	+	3	b

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2016	8188	**Brussels sprouts**	S. Ovakam Ad1647	Compost	Seeding 48h 2-8°C	/	1-1-0-0-2 (0,8)	+	3	b
2016	8189	**Mushrooms**	S. Livingstone Ad2566	Potatoes	Seeding 48h 2-8°C	/	0-3-5-2-2 (2,4)	+	3	b
2021	3266	**Grated carrot**	S. Virchow Ad2569	Zucchini	Seeding 48h 2-8°C	/	1-1-4-2-5 (2,6)	+	3	b
2021	3271	**Baby leaves spinach**	S. Virchow Ad2569	Zucchini	Seeding 48h 2-8°C	/	1-1-4-2-5 (2,6)	+	3	b
2021	3272	**Spinach**	S. Livingstone Ad2566	Potato	Seeding 48h 2-8°C	/	4-3-3-2-2 (2,8)	-	3	b
2021	3273	**Baby leaves spinach**	S. Derby Ad 3057	Spinach	Seeding 48h 2-8°C	/	2-2-1-4-0 (1,8)	+	3	b
2013	102	**Raw vegetable mix with dressing**	S. Kaneshie SAL1.72	Vegetables	(freezing at -20°C / thawing amb. Temp.) x 2	0.7	1	+	3	c
2013	105	**Cooked vegetable mix with mayonnaise**	S. Kottbus SAL1.75	Mixed vegetables	(freezing at -20°C / thawing amb. Temp.) x 2	1.0	3	+	3	c
2013	115	**Cooked vegetable mix with dressing**	S. Kaneshie SAL1.72	Vegetables	(freezing at -20°C / thawing amb. Temp.) x 2	0.7	1	+	3	c
2013	116	**Mushroom, tomato with dressing**	S. Kottbus SAL1.75	Mixed vegetables	(freezing at -20°C / thawing amb. Temp.) x 2	1.0	3	+	3	c
2013	292	**Mango coulis**	S. Senftenberg SAL 1.126	Soy oilcake	-80°C for 10 min + 55°C for 30 min	0.9	28	+	3	c
2016	8190	**Salad with dressing**	S. Ovakam Ad1647	Compost	Seeding 48h 2-8°C	/	1-1-0-0-2 (0,8)	+	3	c
2016	8191	**Sliced carrots with dressing**	S. Livingstone Ad2566	Potatoes	Seeding 48h 2-8°C	/	0-3-5-2-2 (2,4)	+	3	c
2021	3267	**Baby carrot**	S. Livingstone Ad2566	Potato	Seeding 48h 2-8°C	/	4-3-3-2-2 (2,8)	-	3	c
2021	3268	**Raw vegetables: white cabbage/carrot/celery**	S. Livingstone Ad2566	Potato	Seeding 48h 2-8°C	/	4-3-3-2-2 (2,8)	+	3	c
2021	3269	**Hummus chickpeas**	S. Derby Ad 3057	Spinach	Seeding 48h 2-8°C	/	2-2-1-4-0 (1,8)	+	3	c
2021	3270	**Eggplant caviar**	S. Virchow Ad2569	Zucchini	Seeding 48h 2-8°C	/	1-1-4-2-5 (2,6)	+	3	c
2013	106	**Pear chocolate pie**	S. Enteritidis SAL1.190	Pastry swab	-20°C 3 days + 10 min at 50°C	0.7	17	+	4	a
2013	134	**Kiwi apple mango pie**	S. Mikawasima SAL1.87	Fruit salad	-20°C 3 days + 10 min at 50°C	1.2	2	+	4	a
2013	205	**Pudding with eggs**	S. Enteritidis SAL 1.48	Egg product	-80°C for 10 min + 55°C for 30 min	0.6	1	+	4	a
2013	247	**Paris Brest**	S. Enteritidis SAL 1.52	Pastry swab	-80°C for 10 min + 55°C for 30 min	1.0	1	+	4	a

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	**248**	**Flan Pie**	*S.* Enteritidis SAL 1.53	Pastry swab	-80°C for 10 min + 55°C for 30 min	1.6	3	+	4	a
2013	**249**	**Strawberry and custard pie**	*S.* Enteritidis SAL 1.53	Pastry swab	-80°C for 10 min + 55°C for 30 min	1.6	3	+	4	a
2016	**8192**	**Pastry**	S. Havana Ad1728	Whole liquid egg	Seeding 48h 2-8°C	/	1-2-4-4-2 (2,6)	-	4	a
2016	**8193**	**Pastry**	S. Typhimurium Ad1484	Whole liquid egg	Seeding 48h 2-8°C	/	7-4-7-2-7 (5,4)	+	4	a
2016	**8194**	**Pastry**	S. Mbandaka Ad914	Mayonnaise	Seeding 48h 2-8°C	/	0-0-3-0-0 (0,6)	+	4	a
2016	**8195**	**Pastry**	S. Havana Ad1728	Whole liquid egg	Seeding 48h 2-8°C	/	1-2-4-4-2 (2,6)	+	4	a
2016	**8196**	**Pastry**	S. Typhimurium Ad1484	Whole liquid egg	Seeding 48h 2-8°C	/	7-4-7-2-7 (5,4)	+	4	a
2013	**245**	**Egg powder**	*S.* Enteritidis SAL 1.52	Pastry swab	-80°C for 10 min + 55°C for 30 min	1.0	1	+	4	b
2013	**246**	**Liquid eggs**	*S.* Enteritidis SAL 1.52	Pastry swab	-80°C for 10 min + 55°C for 30 min	1.0	4	+	4	b
2013	**303**	**Whole eggs**	*S.* Livingstone SAL 1.193	Liquid egg	-80°C for 10 min + 55°C for 30 min	3.1	1	+	4	b
2013	**304**	**Egg white**	*S.* Livingstone SAL 1.193	Liquid egg	-80°C for 10 min + 55°C for 30 min	3.1	1	+	4	b
2013	**377**	**Egg white**	*S.* Virchow SAL 1.155 (CIP 105355)	/	-80°C for 10 min + 55°C for 30 min	0.9	7	+	4	b
2013	**481**	**Egg yolk powder**	*S.* Enteritidis SAL 1.48	Egg product	-80°C for 10 min + 55°C for 30 min	0.6	1	-	4	b
2013	**482**	**Whole egg powder**	*S.* Enteritidis SAL 1.48	Egg product	-80°C for 10 min + 55°C for 30 min	0.6	1	-	4	b
2016	**8202**	**Pasteurized whole liquid egg**	S. Havana Ad1728	Whole liquid egg	Seeding 48h 2-8°C	/	1-2-4-4-2 (2,6)	+	4	b
2016	**8203**	**Pasteurized white liquid egg**	S. Typhimurium Ad1484	Whole liquid egg	Seeding 48h 2-8°C	/	7-4-7-2-7 (5,4)	+	4	b
2016	**8204**	**Pasteurized yellow liquid egg**	S. Mbandaka Ad914	Mayonnaise	Seeding 48h 2-8°C	/	0-0-3-0-0 (0,6)	+	4	b
2016	**8208**	**Whole egg powder**	S. Enteritidis Ad638	Mayonnaise	Spiking HT 56°C 8min	0,5	5-2-1-4-1 (2,6)	+	4	b
2016	**8209**	**White egg powder**	S. Enteritidis Ad638	Mayonnaise	Spiking HT 56°C 8min	0,5	5-2-1-4-1 (2,6)	+	4	b
2016	**8210**	**White egg powder**	S. Enteritidis Ad638	Mayonnaise	Spiking HT 56°C 8min	0,5	5-2-1-4-1 (2,6)	+	4	b
2013	**112**	**Custard**	S. Mikawasima SAL1.87	Fruit salad	-20°C 3 days + 10 min at 50°C	1.2	2	+	4	c

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	**138**	**Ready to use sauce**	S. Mikawasima SAL1.87	Fruit salad	-20°C 3 days + 10 min at 50°C	1.2	2	+	4	c
2013	**297**	**Mayonnaise**	*S.* Enteritidis SAL 1.48	Egg product	-80°C for 10 min + 55°C for 30 min	0.6	15	+	4	c
2013	**298**	**Fresh tagliatelle**	*S.* Enteritidis SAL 1.48	Egg product	-80°C for 10 min + 55°C for 30 min	0.6	15	+	4	c
2013	**302**	**Homemade flan pie**	*S.* Livingstone SAL 1.193	Liquid egg	-80°C for 10 min + 55°C for 30 min	3.1	1	+	4	c
2013	**376**	**Nature omelette**	*S.* Virchow SAL 1.155 (CIP 105355)	/	-80°C for 10 min + 55°C for 30 min	0.9	7	+	4	c
2016	**8197**	**Custard**	S. Mbandaka Ad914	Mayonnaise	Seeding 48h 2-8°C	/	0-0-3-0-0 (0,6)	+	4	c
2016	**8198**	**Custard**	S. Havana Ad1728	Whole liquid egg	Seeding 48h 2-8°C	/	1-2-4-4-2 (2,6)	+	4	c
2016	**8199**	**Mayonnaise**	S. Typhimurium Ad1484	Whole liquid egg	Seeding 48h 2-8°C	/	7-4-7-2-7 (5,4)	+	4	c
2016	**8200**	**Onions tortilla**	S. Mbandaka Ad914	Mayonnaise	Seeding 48h 2-8°C	/	0-0-3-0-0 (0,6)	+	4	c
2016	**8201**	**Blinis**	S. Havana Ad1728	Whole liquid egg	Seeding 48h 2-8°C	/	1-2-4-4-2 (2,6)	+	4	c
2013	**454**	**Biscuits: Shih Tzu adult**	S. Infantis SAL 1.69	Bone meal	56°C for 30 min	1.2	6	+	5	a
2013	**455**	**Veterinary diet mash for dogs**	S. Infantis SAL 1.69	Bone meal	56°C for 30 min	1.2	6	+	5	a
2013	**456**	**Biscuits: Teckel adult**	S. Infantis SAL 1.69	Bone meal	56°C for 30 min	1.2	6	+	5	a
2013	**457**	**Biscuits: golden retriever adult**	S. Infantis SAL 1.69	Bone meal	56°C for 30 min	1.2	6	+	5	a
2013	**458**	**Biscuits: cats**	S. Senftenberg SAL 1.126	Soy oilcake	56°C for 30 min	1.3	4	+	5	a
2013	**459**	**Biscuits veterinary diet mash for cats**	S. Senftenberg SAL 1.126	Soy oilcake	56°C for 30 min	1.3	4	+	5	a
2013	**460**	**Biscuits: cats adult**	S. Senftenberg SAL 1.126	Soy oilcake	56°C for 30 min	1.3	4	+	5	a
2013	**461**	**Biscuits dental: feline**	S. Senftenberg SAL 1.126	Soy oilcake	56°C for 30 min	1.3	4	+	5	a
2013	**462**	**Rat/mouse feed**	S. Senftenberg SAL 1.123	Bone meal	56°C for 30 min	0.8	3	+	5	a
2016	**8211**	**Pellets for dogs**	S. Mbandaka Ad2647	Dehydrated proteins	Spiking HT 56°C 8min	0,6	6-2-3-4-2 (3,4)	+	5	a
2013	**595**	**Bone meal 11**	S. Gallinarum SAL 1.173	Poultry breeding	56°C for 30 min	0.5	3	+	5	b
2013	**596**	**Bone meal 12**	S. Gallinarum SAL 1.173	Poultry breeding	56°C for 30 min	0.5	3	+	5	b
2013	**597**	**Bone meal 13**	S. Gallinarum SAL 1.173	Poultry breeding	56°C for 30 min	0.5	3	+	5	b

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	**598**	**Bone meal 14**	S. Poona SAL 1.114	Feed workshop environment	56°C for 30 min	1.0	4	+	5	b
2013	**599**	**Bone meal 15**	S. Poona SAL 1.114	Feed workshop environment	56°C for 30 min	1.0	4	+	5	b
2013	**600**	**Bone meal 16**	S. Poona SAL 1.114	Feed workshop environment	56°C for 30 min	1.0	4	+	5	b
2013	**463**	**Rabbit feed**	S. Kedougou SAL 1.74	Bone meal	56°C for 30 min	0.7	6	+	5	c
2013	**466**	**Soy beans for animals**	S. Schwarzengrund SAL 1.123	Bone meal	56°C for 30 min	0.8	3	+	5	c
2013	**467**	**Bran**	S. Schwarzengrund SAL 1.123	Bone meal	56°C for 30 min	0.8	3	+	5	c
2013	**468**	**Oil cake**	S. Gallinarum SAL 1.173	Poultry breeding	56°C for 30 min	0.5	3	+	5	c
2013	**576**	**Meat for animals**	S. Poona SAL 1.114	Feed workshop environment	56°C for 30 min	1.0	4	+	5	c
2016	**8213**	**Cattle feed**	S. Idikan Ad2648	Soya	Spiking HT 56°C 8min	0,6	1-1-1-3-1 (1,4)	+	5	c
2016	**8214**	**Cattle feed**	S. Mbandaka Ad2041	Animal flour	Spiking HT 56°C 8min	0,7	3-5-3-2-4 (3,4)	-	5	c
2013	**393**	**Swab: siphon**	S. Livingstone SAL 1.78	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	6	+	6	a
2013	**399**	**Dairy industry dusts**	S. Tennessee SAL 1.127	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	1.0	6	+	6	a
2013	**410**	**Dairy industry dusts**	S. Tennessee SAL 1.127	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	1.0	6	+	6	a
2013	**411**	**Food dusts**	S. Tennessee SAL 1.127	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	1.0	6	+	6	a
2013	**412**	**Food dusts**	S. Plymouth SAL 1.113	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.9	4	+	6	a
2013	**413**	**Food dusts**	S. Plymouth SAL 1.113	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.9	4	+	6	a
2013	**415**	**Sponge: siphon**	S. Plymouth SAL 1.113	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.9	4	+	6	a
2013	**430**	**Rinsing water**	S. Ohio SAL 1.99	Production workshop environment	(-80°C for 15 min / 56°C for 15 min)x2	1.9	8	+	6	b
2013	**431**	**Ice in food contact**	S. Ohio SAL 1.99	Production workshop environment	(-80°C for 15 min / 56°C for 15 min)x2	1.9	8	+	6	b

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	432	Rinsing water	S. Ohio SAL 1.99	Production workshop environment	(-80°C for 15 min / 56°C for 15 min)x2	1.9	8	+	6	b
2013	433	Rinsing water	S. Rissen SAL 1.116	Production workshop environment	(-80°C for 15 min / 56°C for 15 min) x 2	1.8	7	+	6	b
2013	434	Rinsing water	S. Rissen SAL 1.116	Production workshop environment	(-80°C for 15 min / 56°C for 15 min) x 2	1.8	7	+	6	b
2013	435	Ice in food contact	S. Rissen SAL 1.116	Production workshop environment	(-80°C for 15 min / 56°C for 15 min) x 2	1.8	7	+	6	b
2013	436	Process water (fish)	S. Worthington SAL 1.161	Production workshop environment	(-80°C for 15 min / 56°C for 15 min) x 2	0.7	16	+	6	b
2013	437	Process water (meat)	S. Worthington SAL 1.161	Production workshop environment	(-80°C for 15 min / 56°C for 15 min) x 2	0.7	16	+	6	b
2016	8205	Wash water	S. Mbandaka Ad1723	Environment	Seeding 48h 2-8°C	/	2-1-6-1-1 (2,0)	+	6	b
2016	8206	Rinse water	S. Mbandaka Ad1723	Environment	Seeding 48h 2-8°C	/	2-1-6-1-1 (2,0)	-	6	b
2016	8207	Process water	S. Mbandaka Ad1723	Environment	Seeding 48h 2-8°C	/	2-1-6-1-1 (2,0)	+	6	b
2013	390	Swab: refrigerator	S. Livingstone SAL 1.78	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	6	+	6	c
2013	391	Swab: freezer (indoor)	S. Livingstone SAL 1.78	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	6	+	6	c
2013	392	Swab: oven (indoor)	S. Livingstone SAL 1.78	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	6	+	6	c
2013	394	Swab: sink	S. Muenchen SAL 1.96	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	5	+	6	c
2013	395	Swab: shelf	S. Muenchen SAL 1.96	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	5	+	6	c
2013	396	Swab: cutting board	S. Muenchen SAL 1.96	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	5	+	6	c
2013	397	Swab: oven	S. Muenchen SAL 1.96	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.8	5	+	6	c
2013	398	Swab: pot	S. Tennessee SAL 1.127	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	1.0	6	+	6	c
2013	414	Sponge: dishwasher	S. Plymouth SAL 1.113	Production workshop environment	(-80°C for 20 min / 56°C for 20 min) x 2	0.9	4	+	6	c

Year of analysis	Ref	Sample	Artificial contamination					Global result	Category	Type
			Strain	Origin	Injury protocol	Injury measurement	CFU/ sample			
2013	**416**	**Sponge: cutting board**	S. Dublin SAL 1.202	Dairy industry environment	(-80°C for 20 min / 56°C for 20 min) x 2	2.7	3	**+**	6	c
2013	**418**	**Sponge: shelf**	S. Dublin SAL 1.202	Dairy industry environment	(-80°C for 20 min / 56°C for 20 min) x 2	2.7	3	**-**	6	c
2013	**419**	**Sponge: spoon**	S. Dublin SAL 1.202	Dairy industry environment	(-80°C for 20 min / 56°C for 20 min) x 2	2.7	3	**-**	6	c

Appendix 4 - Sensitivity study: raw data (Initial validation study, ISHA - 2013 and Extension study, ADRIA Développement - 2016 & 2021)

Initial validation study (ISHA, 2013)

a:	level determined by 5 enumerations
+ :	positive result
- g:	negative result
/:	test non realized
Ø:	absence of Ct
PA:	positive agreement
NA:	negative agreement
PD:	positive deviation
ND:	negative deviation
PPND:	presumptive positive negative deviation
PPNA:	presumptive positive negative agreement
Inh:	inhibition of the PCR reaction
A / B / C:	level of annex flora, from high to low
1 / 2 / 3:	level of typical flora, from high to low
(1):	Additional confirmatory tests applied
multi ct:	manual and visual interpretation *(means that the baseline crosses the threshold multiple types (wavy baseline)*
+p:	pure culture of level of target analyte
+M:	majority level of target analyte
+m:	minority level of target analyte
+ 1/2:	50 % level of target analyte
st:	plate without any colonies
*:	DNA extract dilute 1/10
**:	DNA extract dilute 1/50

Renewal and extension studies (ADRIA Développement, 2016 et 2021)

Bold typing : artificially inoculated samples

***Salmonella* detection results:**

m:	minority level of target analyte
M :	majority level of target analyte
P:	pure culture level of target analyte
1/2 :	50% level of target analyte
(x):	number of colonies in the plate
-:	no typical colonies but presence of background microflora
st:	plate without any colony
d:	doubtful result
PA:	positive agreement
NA:	negative agreement
ND:	negative deviation
PD:	positive deviation
PPNA:	positive presumptive negative agreement
PPND :	positive presumptive negative deviation

PCR:	Message provided by the software	Explanation
!	Sample control channel inhibited	Inhibition, dilute the DNA extract 1/10
?	Sample target channel Ct undetermined	Sample result>38 test again the sample
⊗	Sample control channel not in range	Positive result
⊗	Sample control	The sample is 'out of range" but positive direction
-*		Negative PCR result diluted sample 1/10
+*		Positive PCR result diluted sample 1/10
+**		Positive PCR result diluted sample 1/50
+***		Positive PCR result diluted sample 1/100

♦	Renewal study 2016, ADRIA Développement - Analyses performed according to the COFRAC accreditation
♦	Renewal study 2021, ADRIA Développement - Analyses performed according to the COFRAC accreditation

MEAT PRODUCTS																	
Year of analysis	Ref	Sample	Reference method : 6579					Result	Alternative method : Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	30	Poultry meat	-	-	-	-	/	-	29,56	30,52	+	+(1)	+	PD	1	a
			A	A	A	A										
2013	**54**	**Chicken liver**	+	+	+	+	+	+	28,76	28,49	+	+	+	PA	1	a
			1	1	1	1										
2013	**55**	**Poultry sausages**	+	+	+	+	+	+	27,82	21,18	+	+	+	PA	1	a
			1,C	2,C	2,C	1,C										
2013	91	Raw chopped chicken	+	+	+	+	+	+	29,51	26,44	+	+	+	PA	1	a
			2,B	2,B	2,C	2,C										
2013	94	Raw chicken	+	+	+	+	+	+	30,95	32,61	+	+	+	PA	1	a
			3,C	1,C	1,C	2,A										
2013	**97**	**Smoked poultry**	+	+	+	+	+	+	28,87	20,33	+	+	+	PA	1	a
			3,A	3	3,A	3										
2013	**113**	**Ready to reheat duck**	+	+	+	+	+	+	29,49	26,85	+	+	+	PA	1	a
			3	3	2	2										
2013	**128**	**Ready to reheat poultry**	+	+	+	+	+	+	29,40	20,44	+	+	+	PA	1	a
			2	2	2	2										
2013	369	Raw duck leg	+	+	-	-	+	+	30,29	31,80	+	+	+	PA	1	a
			3<5,B	3,B	B	B										
2013	25	Raw chicken leg	-	-	-	-	/	-	31,43	Ø	-	/	-	NA	1	a
			C	C	C	C										
2013	26	Neck skin of chicken	-	-	-	-	/	-	30,91	Ø	-	/	-	NA	1	a
			C	C	C	C										
2013	27	Neck skin of chicken	-	-	-	-	/	-	37,41	Ø	-	/	-	NA	1	a
			Ø	Ø	Ø	Ø										
2013	28	Raw chicken breast	-	-	-	-	/	-	30,87	Ø	-	/	-	NA	1	a
			B	B	A	A										
2013	35	Raw turkey breast	-	-	-	-	/	-	35,61	Ø	-	/	-	NA	1	a
			C	C	A	A										

MEAT PRODUCTS																	
Year of analysis	Ref	Sample	Reference method : 6579					Result	Alternative method : Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	40	Raw turkey escalope	+	+	-	-	-	-	32,17	Ø	-	/	-	NA	1	a
			3,C	3,C	B	B										
2013	41	Raw chicken liver	-	-	-	-	/	-	29,81	Ø	-	/	-	NA	1	a
			Ø	Ø	B	A										
2013	42	Raw poultry sausages	+	-	+	-	-	-	28,79	Ø	-	/	-	NA	1	a
			3,A <5	A	3,A <5	A										
2013	**53**	**Raw turkey escalope**	+	+	+	+	-	-	24,68	Ø	-	/	-	NA	1	a
			2,C	2,C	2,B	1,B										
2013	69	Sliced smoked poultry	-	-	-	-	/	-	30,66	Ø	-	/	-	NA	1	a
			Ø	Ø	Ø	Ø										
2013	85	Peking duck	-	-	-	-	/	-	33,38	Ø	-	/	-	NA	1	a
			C	B	A	A										
2013	11	Beef meat	+	+	+	-	-	-	30,28	22,62	+	+(1)	+	PD	1	b
			A,1	A,1	A,1	A										
2013	12	Minced beef meat	+	+	+	+	+	+	30,69	22,46	+	+	+	PA	1	b
			A,1	A,1	A,1	A,1										
2013	13	Minced beef meat	+	+	+	+	+	+	30,71	26,12	+	+	+	PA	1	b
			A,1	A,1	A,1	A,1										
2013	15	Beef meat	+	-	+	-	-	-	30,05	31,58	+	+(1)	+	PD	1	b
			A,1	A	A,1	A										
2013	17	Beef meat	+	+	+	+	+	+	36,46	Ø	-	+	-	ND	1	b
			A,2	A,2	A,2	A,2										
2013	36	Beef meat	+	+	+	+	+	+	34,19	29,00	+	+	+	PA	1	b
			C	B	A	B										
2013	**60**	**Minced meat**	+	+	+	+	+	+	28,10	27,92	+	+	+	PA	1	b
			2,C	2,C	1,C	1,C										
2013	**61**	**Frozen chopped steak**	+	+	+	+	+	+	28,23	26,80	+	+	+	PA	1	b
			2,C	2,C	3,C	2,A										

MEAT PRODUCTS																	
Year of analysis	Ref	Sample	Reference method : 6579					Result	Alternative method : Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**114**	**Raw lamb meat**	+	+	+	+	+	**+**	29,87	25,19	+	+	**+**	**PA**	1	b
			3	3	3,C	3										
2013	37	Raw minced meat	-	-	-	-	/	**-**	33,35	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	38	Raw meat	-	-	-	-	/	**-**	30,94	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	47	Raw minced meat	-	-	-	-	/	**-**	29,42	Ø	-	/	**-**	**NA**	1	b
			C	A	B	A										
2013	48	Frozen chopped steak	-	-	-	-	/	**-**	29,33	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	49	Frozen beef patties	-	-	-	-	/	**-**	28,89	Ø	-	/	**-**	**NA**	1	b
			A	B	A	A										
2013	51	Raw minced veal	-	-	+	+	-	**-**	34,52	Ø	-	/	**-**	**NA**	1	b
			C	C	3,C	3,C										
2013	52	Raw halal chopped steak	-	-	-	-	/	**-**	29,84	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	86	Raw lamb chop	-	-	+	+	-	**-**	32,63	Ø	-	/	**-**	**NA**	1	b
			C	C	1,C	1,C										
2013	156	Minced pork bard	-	-	-	-	/	**-**	29,65	Ø	-	/	**-**	**NA**	1	b
			B	B	B	B										
2013	308	Round piece of raw beef	-	-	-	-	/	**-**	28,71	35,72	+	-	**-**	**PPNA**	1	b
			C	C	A	A										
2013	309	Raw pork chine	-	-	-	-	/	**-**	31,50	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	310	Raw pork shoulder	-	-	-	-	/	**-**	31,73	Ø	-	/	**-**	**NA**	1	b
			B	B	A	A										
2013	316	Lower raw veal	-	-	-	-	/	**-**	30,57	36,34	+	-	**-**	**PPNA**	1	b
			B	B	A	A										

MEAT PRODUCTS																	
Year of analysis	Ref	Sample	Reference method : 6579					Result	Alternative method : Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**95**	**Smoked veal**	+	+	+	+	+	**+**	29,39	21,40	+	+	**+**	**PA**	1	c
			3,C	3,C	3,A	3,A										
2013	**98**	**Sliced ham**	+	+	+	+	+	**+**	29,60	20,29	+	+	**+**	**PA**	1	c
			3,A	3	3,A	3										
2013	**99**	**Ham**	+	+	+	+	+	**+**	29,22	25,48	+	+	**+**	**PA**	1	c
			3,A	3,B	3,A	3,C										
2013	**125**	**Delicatessen**	+	+	+	+	+	**+**	28,91	multi ct	+	+	**+**	**PA**	1	c
			3,C	3,C	3,B	3,B				19,01						
2013	**126**	**Merguez**	+	+	+	+	+	**+**	30,18	30,81	+	+	**+**	**PA**	1	c
			3,C	3,C	3,B	3,B										
2013	**132**	**Ready to reheat beef (goulash)**	+	+	+	+	+	**+**	30,38	25,15	+	+	**+**	**PA**	1	c
			3	3	3,C	3,C										
2013	**325**	**Chicken delicatessen**	+	+	+	+	+	**+**	30,10	34,70	+	+	**+**	**PA**	1	c
			2	2	1	1										
2013	327	Beef sausage	-	-	+	+	+	**+**	30,31	39,74	+	+	**+**	**PA**	1	c
			B	B	3,A	3,A										
2013	367	Duck gizzards	+	+	+	+	+	**+**	30,25	30,71	+	+	**+**	**PA**	1	c
			3,B	3,C	3,B	3,B										
2013	43	Raw spiced merguez	-	-	+	-	-	**-**	28,49	Ø	-	/	**-**	**NA**	1	c
			B	B	2,B	C										
2013	44	Raw pork sausages with herbs	-	-	-	-	/	**-**	28,69	35,65	+	-	**-**	**PPNA**	1	c
			B	B	A	A										
2013	45	Carpaccio parmesan & olives	-	-	-	-	/	**-**	29,90	Ø	-	/	**-**	**NA**	1	c
			Ø	Ø	B	B										
2013	46	Carpaccio tapenade & tomatoes	-	-	-	-	/	**-**	30,27	Ø	-	/	**-**	**NA**	1	c
			C	C	A	A										
2013	50	Frozen minced beef and tomatoes	-	-	-	-	/	**-**	28,83	Ø	-	/	**-**	**NA**	1	c
			B	B	A	A										

MEAT PRODUCTS																	
Year of analysis	Ref	Sample	Reference method : 6579					Result	Alternative method : Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	67	Cut smoked veal	-	-	-	-	/	-	30,26	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	68	Sliced chorizo	-	-	-	-	/	-	29,81	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	70	Sliced ham	-	-	-	-	/	-	30,65	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	72	Garlic dry sausage	-	-	-	-	/	-	31,46	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	144	Raw Espelette pepper sausage	-	-	+	+	-	-	30,42	Ø	-	/	-	NA	1	c
			B	B	3,B	3,B										
2013	145	Saveloy	-	-	-	-	/	-	28,86	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	146	Raw merguez	-	-	-	-	/	-	28,57	Ø	-	/	-	NA	1	c
			C	C	A	A										
2013	147	Raw chipolatas	-	-	-	-	/	-	30,50	Ø	-	/	-	NA	1	c
			C	C	A	B										
2013	148	Cordon bleu	-	-	-	-	/	-	29,41	37,89	+	-	-	PPNA	1	c
			Ø	Ø	Ø	Ø										
2013	152	Goulash	-	-	-	-	/	-	29,97	Ø	-	/	-	NA	1	c
			Ø	Ø	Ø	Ø										
2013	**329**	**Ready to eat meal with chicken and pepper**	+	+	+	+	+	+	29,31	22,43	+	+	+	PA	1	c
			2	2	2,C	2,C										
2013	**330**	**Ready to eat meal with chicken and pistachio**	+	+	+	+	+	+	31,69	34,87	+	+	+	PA	1	c
			2	2	2	2										
2013	**331**	**Ready to eat meal with veal**	+	+	+	+	+	+	28,80	multi ct	+	+	+	PA	1	c
			2,C	2,C	2,C	2,C				19,15						

FISH AND SEAFOOD PRODUCTS																
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			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**119**	**Raw salmon fillet**	+ 3	+ 3	+ 2	+ 2	+	**+**	33,65	26,90	+	+	**+**	**PA**	2	a
2013	**122**	**Fish**	+ 3	+ 3	+ 2	+ 2	+	**+**	29,73	21,02	+	+	**+**	**PA**	2	a
2013	**131**	**Tuna sushi**	+ 3	+ 3	+ 2,B	+ 2,B	+	**+**	29,27	27,17	+	+	**+**	**PA**	2	a
2013	**133**	**Saithe fillet**	+ 3	+ 3	+ 3	+ 1	+	**+**	30,84	22,79	+	+	**+**	**PA**	2	a
2013	**134**	**Swordfish loin**	+ 3	+ 3	+ 3	+ 1	+	**+**	30,84	22,79	+	+	**+**	**PA**	2	a
2013	**135**	**Raw shrimps**	+ 3	+ 3	+ 1	+ 1	+	**+**	30,45	21,35	+	+	**+**	**PA**	2	a
2013	**237**	**Whiting fillet**	+ 1	+ 1	+ 1	+ 1	+	**+**	29,93	26,96	+	+	**+**	**PA**	2	a
2013	**238**	**Red-mullet fillet**	+ 1	+ 1	+ 1	+ 1	+	**+**	29,58	32,30	+	+	**+**	**PA**	2	a
2013	**240**	**Trout fillet**	- A	+ 3,<5,A	- A	- A	+	**+**	29,85	27,94	+	+	**+**	**PA**	2	a
2013	**332**	**Ray wing**	+ 2	+ 2	+ 2	+ 2	+	**+**	31,96	32,55	+	+	**+**	**PA**	2	a
2013	**333**	**Cuttlefish**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,74	30,23	+	+	**+**	**PA**	2	a
2013	**120**	**Raw tuna filet**	- C	- C	- Ø	- Ø	/	**-**	33,22	Ø	-	/	**-**	**NA**	2	a
2013	139	Raw salmon fillet	- C	- C	- B	- B	/	**-**	34,97	Ø	-	/	**-**	**NA**	2	a
2013	151	Tuna sushi	- C	- C	- B	- B	/	**-**	29,44	Ø	-	/	**-**	**NA**	2	a
2013	153	Saithe fillet	- Ø	- Ø	- Ø	- Ø	/	**-**	33,62	Ø	-	/	**-**	**NA**	2	a

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2013	207	Swordfish loin	- Ø	- Ø	- C	- B	/	-	30,18	38,77	+	-	-	PPNA	2	a
2013	208	Frozen cod fillet	- C	- C	- B	- B	/	-	29,72	Ø	-	/	-	NA	2	a
2013	209	Whiting fillet	+ 3,B	- C	- B	- B	-	-	33,45	Ø	-	/	-	NA	2	a
2013	211	Red-mullet fillet	- Ø	- Ø	- A	+ 3,A	-	-	30,12	Ø	-	/	-	NA	2	a
2013	212	Trout fillet	- Ø	- Ø	- C	- C	/	-	30,37	Ø	-	/	-	NA	2	a
2013	213	Panga fillet	- B	- B	- B	- B	/	-	31,31	Ø	-	/	-	NA	2	a
2013	214	Raw prawns	- Ø	- Ø	- B	- B	/	-	30,70	Ø	-	/	-	NA	2	a
2021	**3112**	**Smoked herring**	+M	+M	+M	+M	+	+	27,84	19,43	+	+	+	PA	2	b
2021	**3113**	**Smoked trout**	+M	+M	+M	+M	+	+	27,79	18,58	+	+	+	PA	2	b
2021	**3114**	**Smoked salmon**	+m	+M	+1/2	+M	+	+	28,55	19,00	+	+	+	PA	2	b
2021	**3115**	**Smoked trout**	+M	+M	+M	+M	+	+	27,04	17,92	+	+	+	PA	2	b
2021	**3116**	**Marinated anchovy**	st	st	st	st	/	-	34,57/28,59*	Ø/Ø*	!/-*	-	-	NA	2	b
2021	**3117**	**Marinated anchovy**	st	st	st	st	/	-	28,51	Ø	-	-	-	NA	2	b
2021	**3118**	**Marinated fish**	+M	+M	+m	+M	+	+	28,12	18,12	+	+	+	PA	2	b
2021	**3119**	**Marinated herring**	st	st	st	st	/	-	31,78	Ø	-	-	-	NA	2	b
2021	**3120**	**Salmon sushi**	+1/2	+M	+M	+M	+	+	30,23	22,69	+	+	+	PA	2	b
2021	**3121**	**Shrimp sushi**	+m	+M	+m	+M	+	+	27,65	18,97	+	+	+	PA	2	b
2021	**3122**	**Maki salmon**	-	-	-	-	/	-	29,16	Ø	-	-	-	NA	2	b
2021	**3123**	**Maki tuna**	+M	+1/2	+M	+M	+	+	27,99	23,86	+	+	+	PA	2	b
2021	**4518**	**Smoked haddock fillet**	+p	+p	+p	+p	+	+	26,46	24,87	+	+	+	PA	2	b
2021	**4519**	**Smoked sea trout**	+p	+p	+p	+p	+	+	26,77	18,77	+	+	+	PA	2	b
2021	**4520**	**Marinade of sardines with herbs of Provence**	+M	+p	+M	+p	+	+	26,90	18,27	+	+	+	PA	2	b

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2021	4524	Smoked herring fillet	-	-	-	-	/	-	28,69	Ø	-	-	-	**NA**	2	b
2021	4525	Smoked mackerel fillet	st	st	st	st	/	-	28,79	Ø	-	-	-	**NA**	2	b
2021	4526	Smoked salmon	st	st	-	st	/	-	29,11	Ø	-	-	-	**NA**	2	b
2021	4527	Catalan anchovy fillet	st	st	st	st	/	-	28,76	Ø	-	-	-	**NA**	2	b
2021	4528	Chives/parsley marinated salmon dice	st	st	st	st	/	-	29,21	Ø	-	-	-	**NA**	2	b
2021	4529	Fillet of anchovies with garlic and parsley	st	st	st	st	/	-	28,25	Ø	-	-	-	**NA**	2	b
2013	92	Shrimp ravioli	+ 2,C	+ 2,C	+ 2,C	+ 2,C	+	**+**	30,54	38,57	+	+	**+**	**PA**	2	c
2013	307	Shrimp and chicken buns	+ 3,C	+ 3,C	+ 3,C	+ 3,C	+	**+**	30,63	31,67	+	+	**+**	**PA**	2	c
2013	142	Frozen breaded fish	- Ø	- Ø	- Ø	- Ø	/	**-**	31,22	Ø	-	/	**-**	**NA**	2	c
2013	215	Frozen seafood cocktail (mussels, shrimp, squid, surimi)	- Ø	- Ø	- B	- B	/	**-**	31,26	38,33	+	-	**-**	**PPNA**	2	c
2021	**3124**	**Surimi**	+m	+M	+m	+M	+	+	26,79	18,35	+	+	+	**PA**	2	c
2021	**3125**	**Surimi**	+M	+M	+M	+M	+	+	27,43	18,01	+	+	+	**PA**	2	c
2021	**3126**	**Salmon terrine**	+m	+M	+m	+M	+	+	29,84	26,23	+	+	+	**PA**	2	c
2021	**3127**	**Hake rillettes**	st	st	st	st	/	-	28,62	Ø	-	-	-	**NA**	2	c
2021	**3128**	**Salmon terrine**	st	st	st	st	/	-	29,42	Ø	-	-	-	**NA**	2	c
2021	**3129**	**Norway lobster rillettes**	+m	+M	+m	+M	+	+	27,24	18,28	+	+	+	**PA**	2	c
2021	**3130**	**Crab rillettes**	+M	+M	+1/2	+M	+	+	28,54	19,08	+	+	+	**PA**	2	c
2021	**3131**	**Scallop rillettes**	+M	+M	+M	+M	+	+	27,98	18,21	+	+	+	**PA**	2	c
2021	**4521**	**Mackerel rillettes**	st	st	st	st	/	-	28,92	Ø	-	-	-	**NA**	2	c
2021	**4522**	**Salmon terrine**	st	st	st	st	/	-	29,91	Ø	-	-	-	**NA**	2	c
2021	**4523**	**Salmon rillettes**	+p	+p	+p	+p	+	+	27,13	18,33	+	+	+	**PA**	2	c
2021	4530	Trout terrine	-	-	-	-	/	-	28,12	Ø	-	-	-	**NA**	2	c
2021	4531	Tuna rillettes and chives	st	st	st	st	/	-	28,80	Ø	-	-	-	**NA**	2	c

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2021	4532	Salmon rillettes	st	st	st	st	/	-	29,61	Ø	-	-	-	**NA**	2	c
2021	4533	Salmon terrine	st	st	st	st	/	-	28,84	Ø	-	-	-	**NA**	2	c
2021	4534	Salmon rillettes	st	st	st	st	/	-	28,74	Ø	-	-	-	**NA**	2	c
2021	4535	Mackerel rillettes	st	st	st	st	/	-	29,02	Ø	-	-	-	**NA**	2	c

VEGETABLES																
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			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	66	Ginger	+ 3,B	+ 3,B	+ 2,B	- A	+	+	28,53	Ø	-	+	-	ND	3	a
2013	374	Rosemary	+ 2	+ 2	+ 1	+ 1	+	+	30,01	22,05	+	+	+	PA	3	a
2013	375	Cocoa butter	+ 2	+ 2	+ 2	+ 2	+	+	30,41	multi ct 18,98	+	+	+	PA	3	a
2013	93	Rosemary	- C	- C	- B	- B	-	-	Ø 30,21	Ø Ø	Inh -	/	-	NA	3	a
2013	372	Rosemary	- Ø	- Ø	- Ø	- Ø	/	-	31,09	Ø	-	/	-	NA	3	a
2013	373	Cocoa butter	- Ø	- Ø	- Ø	- Ø	/	-	32,56	Ø	-	/	-	NA	3	a
2016	**8186**	**Pepper**	-	-	st	st	/	-	29,53	Ø	-	-	-	NA	3	a
2021	**3184**	**Sweet paprika**	-	-	-	-	/	-	39,77/28,80*	29,55/Ø*	!/-*	-	-	NA	3	a
2021	**3185**	**Mild red pepper**	st	st	st	st	/	-	Ø/28,34*	34,16/Ø*	X/-*	-	-	NA	3	a
2021	**3186**	**Grounded ginger**	st	st	st	-	/	-	Ø/28,87*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	**3187**	**Curry hot**	st	st	st	st	/	-	Ø/29,17*	Ø/Ø*	X -*	-	-	NA	3	a
2021	**3188**	**Rosemary thyme**	st	st	st	st	/	-	Ø/29,78*	Ø/Ø*	X /-*	-	-	NA	3	a
2021	**3189**	**Basil**	st	st	st	st	/	-	Ø/Ø*/Ø**/ 29,15***	Ø/Ø*/ Ø**/Ø***	X/X*/X**/ - ***	-	-	NA	3	a
2021	**3190**	**Chive**	+1/2	+M	+1/2	+M	+	+	27,76	20,04	+	+	+	PA	3	a
2021	**3191**	**Parsley**	-	-	-	-	/	-	29,25	Ø	-	-	-	NA	3	a
2021	**3192**	**Dark chocolate 70 %**	+M	+M	+M	+M	+	+	Ø/28,99*	Ø/26,67*	X/+*	+	+	PA	3	a
2021	**3193**	**Dark chocolate 70 %**	st	st	st	st	/	-	Ø/28,70*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	3194	Harissa mix	st	st	st	st	/	-	Ø/28,35*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	3195	Turmeric	-	-	-	-	/	-	Ø/28,30*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	3196	Gray pepper	st	st	st	st	/	-	Ø/28,37*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	3197	Chervil	st	st	st	st	/	-	Ø/28,77*	Ø/Ø*	X/-*	-	-	NA	3	a
2021	3198	Milk chocolate	-	-	-	-	/	-	30,32	Ø	-	-	-	NA	3	a
2021	**4859**	**Ground cumin**	st	st	st	st	/	-	30,49	Ø	-	-	-	NA	3	a

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			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2021	**4860**	**Herbs of Provence**	st	st	st	st	/	-	Ø/32,65*/Ø**/ 27,38***	Ø/Ø*/Ø**/ Ø***	X /!*/ X**/ -***	-	-	**NA**	3	a
2021	**4861**	**Oregano**	st	st	st	st	/	-	Ø/Ø*/Ø** /27,74***	Ø/Ø*/Ø**/ Ø***	X/X*/X**/ -***	-	-	**NA**	3	a
2021	**4862**	**Dark chocolate 95 %**	+p	+p	+M	+p	+	+	30,46/31,91/ 32,74/29,00*	Ø/Ø/Ø/Ø*	-/-/!/-*	+	-	**ND**	3	a
2021	**4863**	**Dark chocolate 75%**	+p	+p	+M	+p	+	+	Ø/27,90*	Ø/27,54*	X/+*	+	+	**PA**	3	a
2021	**4865**	**Dill**	+1/2	+1/2	+1/2	+M	+	+	28,08	20,22	+	+	+	**PA**	3	a
2021	**4867**	**Sage**	+p	+p	+M	+M	+	+	Ø/26,60	Ø/20,13	X /+*	+	+	**PA**	3	a
2021	**4868**	**Tarragon**	+M	+M	+m	+M	+	+	Ø/27,42	Ø/23,66	X /+*	+	+	**PA**	3	a
2021	**5302**	**Sweet paprika**	-	-	-	-	-	-	39,03/28,82*	22,30/Ø*	!/-*	-	-	**NA**	3	a
2021	**5303**	**Ground cumin**	st	st	-	st	-	-	31,29	Ø	-	-	-	**NA**	3	a
2021	**5304**	**Ground turmeric**	+p	+p	+p	+p	+	+	37,53/27,25*	Ø/18,71*	X/+*	+	+	**PA**	3	a
2021	**5305**	**Grounded ginger**	st	st	-	st	-	-	Ø/28,64*	Ø/Ø*	X/-*	-	-	**NA**	3	a
2013	**121**	**Carrots and beans**	+ 3	+ 3	+ 2	+ 2	+	**+**	29,92	multi ct 18,94	+	+	**+**	**PA**	3	b
2013	**285**	**Cucumber**	+ 2	+ 2	+ 2	+ 2	+	**+**	28,62	19,67	+	+	**+**	**PA**	3	b
2013	**286**	**Grated red cabbage**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,27	31,12	+	+	**+**	**PA**	3	b
2013	**117**	**Green beans**	- Ø	- Ø	- Ø	- Ø	/	**-**	31,34	Ø	-	/	**-**	**NA**	3	b
2013	141	Carrots and beans	- Ø	- Ø	- Ø	- Ø	/	**-**	31,35	Ø	-	/	**-**	**NA**	3	b
2013	263	Cucumber	- Ø	- Ø	- Ø	- Ø	/	**-**	29,87	Ø	-	/	**-**	**NA**	3	b
2013	264	Grated red cabbage	- Ø	- Ø	- Ø	- Ø	/	**-**	31,40	Ø	-	/	**-**	**NA**	3	b
2013	265	Grated carrots	- Ø	- Ø	- Ø	- Ø	/	**-**	29,93	39,65	+	-	**-**	**PPNA**	3	b

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			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	266	Grated celery	- Ø	- Ø	- Ø	- Ø	/	-	32,83	Ø	-	/	-	NA	3	b
2013	267	Grated beet	- C	- C	- Ø	- Ø	/	-	30,29	Ø	-	/	-	NA	3	b
2013	272	Grape	- Ø	- Ø	- Ø	- Ø	/	-	30,16	Ø	-	/	-	NA	3	b
2013	273	Strawberry	- Ø	- Ø	- Ø	- Ø	/	-	30,70	Ø	-	/	-	NA	3	b
2013	**464**	**Alfalfa**	+ 3	+ 3	+ 3	+ 3	+	+	29,49	20,40	+	+	+	PA	3	b
2013	450	Alfalfa	- Ø	- Ø	- Ø	- Ø	/	-	29,70	Ø	-	/	-	NA	3	b
2016	**8185**	**Salad**	+M	+p	+M	+M	+	+	28,31	24,24	+	+	+	PA	3	b
2016	**8187**	**Leeks**	+p	+p	+p	+p	+	+	29,59	19,98	+	+	+	PA	3	b
2016	**8188**	**Brussels sprouts**	+p	+p	+M	+p	+	+	29,45	25,77	+	+	+	PA	3	b
2016	**8189**	**Mushrooms**	+M	+M	+M	+M	+	+	28,74	20,30	+	+	+	PA	3	b
2016	8215	Salad	-	-	-	-	/	-	29,40	Ø	-	-	-	NA	3	b
2016	8216	Brussels sprouts	-	-	-	-	/	-	30,14	Ø	-	-	-	NA	3	b
2021	**3266**	**Grated carrot**	+M	+M	+m	+M	+	+	29,01	37,05	+	+	+	PA	3	b
2021	**3271**	**Baby leaves spinach**	+M	+M	+M	+M	+	+	28,33	22,03	+	+	+	PA	3	b
2021	**3272**	**Spinach**	-	-	-	-	/	-	29,24	Ø	-	-	-	NA	3	b
2021	**3273**	**Baby leaves spinach**	+M	+1/2	+M	+M	+	+	28,81	30,21	+	+	+	PA	3	b
2013	**102**	**Raw vegetable mix with dressing**	+ 3,C	+ 3	+ 3,C	+ 3,C	+	+	29,77	20,61	+	+	+	PA	3	c
2013	**105**	**Cooked vegetable mix with mayonnaise**	+ 3	+ 3	+ 3	+ 3	+	+	30,01	20,35	+	+	+	PA	3	c
2013	**115**	**Cooked vegetable mix with dressing**	+ 3,C	+ 3,C	+ 3,C	+ 3,C	+	+	31,29	39,61	+	+	+	PA	3	c
2013	**116**	**Mushroom, tomato with dressing**	+ 3,C	+ 3	+ 3,C	+ 3	+	+	29,62	20,72	+	+	+	PA	3	c

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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**292**	**Mango coulis**	+ 2	+ 2	+ 1	+ 1	+	**+**	30,27	31,60	+	+	**+**	**PA**	3	c
2013	73	Celery with dressing	- Ø	- Ø	- Ø	- Ø	/	**-**	30,47	Ø	-	/	**-**	**NA**	3	c
2013	74	Mix with tomatoes salad and red onions	- Ø	- Ø	- Ø	- Ø	/	**-**	33,21	Ø	-	/	**-**	**NA**	3	c
2013	75	Cucumber with dressing	- C	- C	- B	- B	/	**-**	31,68	Ø	-	/	**-**	**NA**	3	c
2013	76	Potatoes salad	- B	- B	- A	- A	/	**-**	30,21	Ø	-	/	**-**	**NA**	3	c
2013	77	Vegetables mix with mayonnaise	- Ø	- Ø	- Ø	- Ø	/	**-**	30,62	Ø	-	/	**-**	**NA**	3	c
2013	84	Strawberry coulis	- Ø	- Ø	- Ø	- Ø	/	**-**	31,70	Ø	-	/	**-**	**NA**	3	c
2013	87	Salad: cauliflower-broccoli-tomato-vinaigrette	- Ø	- Ø	- C	- C	/	**-**	35,12	Ø	-	/	**-**	**NA**	3	c
2013	88	Mushrooms, tomatoes, dressing	- Ø	- Ø	- B	- B	/	**-**	31,03	Ø	-	/	**-**	**NA**	3	c
2013	90	Fried vegetables (asparagus, cabbage, zucchini, eggplant)	- Ø	- Ø	- Ø	- Ø	/	**-**	31,59	Ø	-	/	**-**	**NA**	3	c
2013	149	Ready to reheat potatoes and zucchini	- C	- C	- A	- A	/	**-**	30,66	Ø	-	/	**-**	**NA**	3	c
2016	**8190**	**Salad with dressing**	+p	+p	+p	+p	+	+	26,82/31,49*	Ø/32,80*	!/+*	+	+	**PA**	3	c
2016	**8191**	**Sliced carrots with dressing**	+M	+p	+p	+p	+	+	29,26	26,94	+	+	+	**PA**	3	c
2021	**3267**	**Baby carrot**	-	-	-	-	/	-	29,18	Ø	-	-	-	**NA**	3	c
2021	**3268**	**Raw vegetables: white cabbage/carrot/celery**	+M	+M	+M	+M	+	+	28,76	33,50	+	+	+	**PA**	3	c
2021	**3269**	**Hummus chickpeas**	+M	+M	+M	+M	+	+	30,41	29,49	+	+	+	**PA**	3	c
2021	**3270**	**Eggplant caviar**	+M	+M	+M	+M	+	+	29,08/28,83	38,99/36,05	?/+	+	+	**PA**	3	c

EGG PRODUCTS																
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**106**	**Pear chocolate pie**	+ 3	+ 3	+ 3,B	+ 3,B	+	**+**	29,77	20,3	+	+	**+**	**PA**	4	a
2013	**134**	**Kiwi apple mango pie**	+ 3	+ 3	+ 2	+ 2	+	**+**	29,52	20,03	+	+	**+**	**PA**	4	a
2013	**205**	**Pudding with eggs**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,69	multi ct 18,32	+	+	**+**	**PA**	4	a
2013	**247**	**Paris Brest**	- A	- A	+ 1	+ 1	+	**+**	30,22	37,47	+	+	**+**	**PA**	4	a
2013	**248**	**Flan Pie**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,59	34,70	+	+	**+**	**PA**	4	a
2013	**249**	**Strawberry and custard pie**	- C	- Ø	+ 3,B	+ 3,B	+	**+**	30,95	Ø	-	+	**-**	**ND**	4	a
2013	78	Pear chocolate pie	- Ø	- Ø	- Ø	- Ø	/	**-**	30,54	Ø	-	/	**-**	**NA**	4	a
2013	79	Lemon vanilla pastry	- Ø	- Ø	- Ø	- Ø	/	**-**	31,90	Ø	-	/	**-**	**NA**	4	a
2013	80	Raspberry pie	- Ø	- Ø	- Ø	- Ø	/	**-**	31,15	Ø	-	/	**-**	**NA**	4	a
2013	81	Coffee éclair	- C	- C	- A	- A	/	**-**	31,02	Ø	-	/	**-**	**NA**	4	a
2013	82	Vanilla pudding	- Ø	- Ø	- Ø	- Ø	/	**-**	31,23	Ø	-	/	**-**	**NA**	4	a
2013	154	Kiwi apple mano pie	- Ø	- Ø	- Ø	- Ø	/	**-**	29,60	Ø	-	/	**-**	**NA**	4	a
2013	181	Pudding with eggs	- Ø	- Ø	- Ø	- Ø	/	**-**	30,07	39,92	+	-	**-**	**PPNA**	4	a
2013	216	Pastry with custard	- C	- C	- B	- B	/	**-**	30,34	Ø	-	/	**-**	**NA**	4	a

EGG PRODUCTS																	
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	217	Pastry with whipped cream	- C	- C	- A	- A	/	-	30,70	Ø	-	/	-	NA	4	a
2013	218	Tropézienne	- Ø	- Ø	- C	- C	/	-	30,08	Ø	-	/	-	NA	4	a
2013	219	Paris-Brest	- B	- B	- B	- B	/	-	30,44	Ø	-	/	-	NA	4	a
2013	221	Strawberry and custard pie	- Ø	- Ø	- B	- B	/	-	30,25	Ø	-	/	-	NA	4	a
2013	222	Chocolate éclair	- Ø	- Ø	- B	- B	/	-	30,63	Ø	-	/	-	NA	4	a
2013	223	Mille feuilles	- C	- C	- B	- B	/	-	30,72	Ø	-	/	-	NA	4	a
2013	274	Madeleines	- Ø	- Ø	- Ø	- Ø	/	-	30,52	Ø	-	/	-	NA	4	a
2013	279	Homemade caramel pudding	- Ø	- Ø	- Ø	- Ø	/	-	29,84	Ø	-	/	-	NA	4	a
2013	280	Homemade flan pie	- Ø	- Ø	- Ø	- Ø	/	-	30,96	Ø	-	/	-	NA	4	a
2016	**8192**	**Pastry**	st	st	st	st	/	-	31,58		-	-	-	NA	4	a
2016	**8193**	**Pastry**	+M	+M	+m	+m	+	+	28,79	26,27	+	+	+	PA	4	a
2016	**8194**	**Pastry**	+M	+p	+M	+M	+	+	29,86	20,71	+	+	+	PA	4	a
2016	**8195**	**Pastry**	+p	+p	+p	+p	+	+	29,77	26,45	+	+	+	PA	4	a
2016	**8196**	**Pastry**	+p	+p	+p	+p	+	+	28,77	18,71	+	+	+	PA	4	a
2013	**245**	**Egg powder**	+ 2,C	+ 2,C	+ 3,B	+ 3,B	+	+	35,76	Ø	23,87	+	+	PA	4	b
2013	**246**	**Liquid eggs**	+ 2	+ 2	+ 2,C	+ 2,C	+	+	31,48	26,41	Pos	+	+	PA	4	b
2013	**303**	**Whole eggs**	+ 2	+ 2	+ 1	+ 1	+	+	36,34	Ø	-	+	-	ND	4	b

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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**304**	**Egg white**	+ 2	+ 2	+ 2	+ 2	+	**+**	32,68	25,28	+	+	**+**	**PA**	4	b
2013	**377**	**Egg white**	+ 2,C	+ 2,C	+ 2,C	+ 2,C	+	**+**	29,70	22,95	+	+	**+**	**PA**	4	b
2013	157	Custard for cake filling	- Ø	- Ø	- Ø	- Ø	/	**-**	29,41	Ø	-	/	**-**	**NA**	4	b
2013	180	Custard	- Ø	- Ø	- Ø	- Ø	/	**-**	30,43	Ø	-	/	**-**	**NA**	4	b
2013	182	Eggs	- Ø	- Ø	- Ø	- Ø	/	**-**	30,07	Ø	-	/	**-**	**NA**	4	b
2013	281	Whole eggs	- Ø	- Ø	- Ø	- Ø	/	**-**	Ø 34,43	Ø 38,42	Inh +	-	**-**	**PPNA**	4	b
2013	282	White of egg	- Ø	- Ø	- Ø	- Ø	/	**-**	Ø 32,86	Ø Ø	Inh -	-	**-**	**NA**	4	b
2013	283	Egg yolk	- Ø	- Ø	- Ø	- Ø	/	**-**	30,04	Ø	-	/	**-**	**NA**	4	b
2013	284	Egg powder	- Ø	- Ø	- Ø	- Ø	/	**-**	30,71	Ø	-	/	**-**	**NA**	4	b
2013	**481**	**Egg yolk powder**	- Ø	- Ø	- Ø	- Ø	/	**-**	31,82	Ø	-	/	**-**	**NA**	4	b
2013	**482**	**Whole egg powder**	- Ø	- Ø	- Ø	- Ø	/	**-**	32,52	Ø	-	/	**-**	**NA**	4	b
2016	**8202**	**Pasteurized whole liquid egg**	+p	+p	+p	+p	+	**+**	32,96/32,51*/ 29,75**	24,69/26,50*/ 23,42**	!/!*/+**	+	**+**	**PA**	4	b
2016	**8203**	**Pasteurized white liquid egg**	+p	+p	+p	+p	+	**+**	29,32	26,02	+	+	**+**	**PA**	4	b
2016	**8204**	**Pasteurized yellow liquid egg**	+p	+p	+p	+p	+	**+**	39,99/29,54*	34,61/28,84*	!/+*	+	**+**	**PA**	4	b
2016	**8208**	**Whole egg powder**	+p	+p	+p	+p	+	**+**	30,94	27,21	+	+	**+**	**PA**	4	b
2016	**8209**	**White egg powder**	+p	+p	+p	+p	+	**+**	30,03	19,70	+	+	**+**	**PA**	4	b

EGG PRODUCTS																	
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2016	**8210**	**White egg powder**	+p	+p	+p	+p	+	+	28,62	18,77	+	+	+	**PA**	4	b
2016	8217	Pasteurized whole liquid egg	st	st	st	st	/	-	30,89**	Ø	X /X */-**	-	-	**NA**	4	b
2013	**112**	**Custard**	+ 3	+ 3	+ 2	+ 2	+	**+**	29,79	20,26	+	+	**+**	**PA**	4	c
2013	**138**	**Ready to use sauce**	+ 2	+ 2	+ 2	+ 2	+	**+**	29,23	25,91	+	+	**+**	**PA**	4	c
2013	**297**	**Mayonnaise**	+ 2	+ 2	+ 1	+ 1	+	**+**	33,44	33,47	+	+	**+**	**PA**	4	c
2013	**298**	**Fresh tagliatelle**	+ 2	+ 2	+ 1	+ 1	+	**+**	30,92	20,09	+	+	**+**	**PA**	4	c
2013	**302**	**Homemade flan pie**	+ 2	+ 2	+ 2	+ 2	+	**+**	29,46	20,57	+	+	**+**	**PA**	4	c
2013	**376**	**Nature omelette**	+ 2	+ 2	+ 2	+ 2	+	**+**	31,22	20,20	+	+	**+**	**PA**	4	c
2013	220	Flan pie	- Ø	- Ø	- Ø	- Ø	/	**-**	30,10	Ø	-	/	**-**	**NA**	4	c
2013	275	Mayonnaise	- Ø	- Ø	- Ø	- Ø	/	**-**	37,65	Ø	-	/	**-**	**NA**	4	c
2013	276	Fresh tagliatelle	- Ø	- Ø	- B	- B	/	**-**	31,06	Ø	-	/	**-**	**NA**	4	c
2013	277	Tortilla	- Ø	- Ø	- Ø	- Ø	/	**-**	30,10	37,75	+	-	**-**	**PPNA**	4	c
2013	278	Pancakes filled with cooked eggs	- Ø	- Ø	- Ø	- A	/	**-**	30,19	Ø	-	/	**-**	**NA**	4	c
2016	**8197**	**Custard**	+p	+p	+p	+p	+	+	28,03	25,19	+	+	+	**PA**	4	c
2016	**8198**	**Custard**	+p	+p	+p	+p	+	+	30,40	18,64	+	+	+	**PA**	4	c
2016	**8199**	**Mayonnaise**	+p	+p	+p	+p	+	+	30,63/31,07/ 30,63	Ø	-/-/-	+	-	**ND**	4	c
2016	**8200**	**Onions tortilla**	+p	+p	+p	+p	+	+	28,59	18,99	+	+	+	**PA**	4	c
2016	**8201**	**Blinis**	+p	+p	+p	+p	+	+	29,62	23,48	+	+	+	**PA**	4	c

EGG PRODUCTS																
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2016	8218	Custard	st	st	st	st	/	-	29,33	Ø	-	-	-	**NA**	4	c
2016	8219	Custard	st	st	st	st	/	-	29,87	Ø	-	-	-	**NA**	4	c
2016	8220	Mayonnaise	st	st	st	st	/	-	34,85/29,67*	Ø	!/-*	-	-	**NA**	4	c
2016	8221	Onions tortilla	st	st	st	st	/	-	29,31	Ø	-	-	-	**NA**	4	c
2016	8222	Blinis	st	st	st	st	/	-	30,88	Ø	-	-	-	**NA**	4	c

ANIMAL FEED AND PET FOOD																	
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**454**	**Biscuits: Shih Tzu adult**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,22	21,81	+	+	**+**	**PA**	5	a
2013	**455**	**Veterinary diet mash for dogs**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,28	20,09	+	+	**+**	**PA**	5	a
2013	**456**	**Biscuits: Teckel adult**	+ 1	+ 1	+ 1	+ 1	+	**+**	29,99	20,81	+	+	**+**	**PA**	5	a
2013	**457**	**Biscuits: golden retriever adult**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,51	22,39	+	+	**+**	**PA**	5	a
2013	**458**	**Biscuits: cat**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,61	21,44	+	+	**+**	**PA**	5	a
2013	**459**	**Biscuits veterinary diet mash for cats**	+ 2	+ 2	+ 2	+ 2	+	**+**	30,87	26,36	+	+	**+**	**PA**	5	a
2013	**460**	**Biscuits: cats adult**	+ 2	+ 2	+ 2	+ 2	+	**+**	33,28	21,96	+	+	**+**	**PA**	5	a
2013	**461**	**Biscuits dental : feline**	+ 2	+ 2	+ 2	+ 2	+	**+**	31,55	21,88	+	+	**+**	**PA**	5	a
2013	**462**	**Rat/mouse feed**	+ 2	+ 2	+ 2	+ 2	+	**+**	32,36	21,00	+	+	**+**	**PA**	5	a
2013	14	Sausage	- C	- C	- A	- A	/	**-**	30,38	Ø	-	/	**-**	**NA**	5	a
2013	440	Biscuits: Shih Tzu adult	- Ø	- Ø	- Ø	- Ø	/	**-**	31,46	Ø	-	/	**-**	**NA**	5	a
2013	441	Veterinary diet mash for dogs	- Ø	- Ø	- Ø	- Ø	/	**-**	30,87	Ø	-	/	**-**	**NA**	5	a
2013	442	Biscuits:Teckel adult	- Ø	- Ø	- Ø	- Ø	/	**-**	31,14	Ø	-	/	**-**	**NA**	5	a
2013	443	Biscuits: golden retriever adult	- Ø	- Ø	- Ø	- Ø	/	**-**	32,85	Ø	-	/	**-**	**NA**	5	a
2013	444	Biscuits: cat	- Ø	- Ø	- Ø	- Ø	/	**-**	33,14	Ø	-	/	**-**	**NA**	5	a

ANIMAL FEED AND PET FOOD																	
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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	445	Croquettes veterinary diet mash for cats	- Ø	- Ø	- Ø	- Ø	/	-	30,76	Ø	-	/	-	NA	5	a
2013	446	Biscuits: cats adult	- Ø	- Ø	- Ø	- Ø	/	-	34,34	Ø	-	/	-	NA	5	a
2013	447	Croquettes dental : feline	- Ø	- Ø	- Ø	- Ø	/	-	32,81	Ø	-	/	-	NA	5	a
2013	448	Rat/mouse feed	- Ø	- Ø	- Ø	- Ø	/	-	35,60	Ø	-	/	-	NA	5	a
2016	**8211**	**Pellets for dogs**	+p	+p	+p	+p	+	+	34,67/36,47*/ 29,37**	25,72/Ø*/ 34,92**	!/!*/+**	+	+	PA	5	a
2013	**595**	**Bone meal 11**	+ 2,A	+ 2,A	+ 2,B	+ 2,B	+	+	28,65	29,95	Pos	+	+	PA	5	b
2013	**596**	**Bone meal 12**	+ 1,A	+ 1,B	+ 1,A	+ 1,A	+	+	29,09	27,36	Pos	+	+	PA	5	b
2013	**597**	**Bone meal 13**	+ 2,B	+ 2,A	+ 2,B	+ 2,B	+	+	28,64	24,63	Pos	+	+	PA	5	b
2013	**598**	**Bone meal 14**	+ 3,A	+ 2,A	+ 3,B	+ 2,B	+	+	28,49	multi ct 29,96	Pos	+	+	PA	5	b
2013	**599**	**Bone meal 15**	+ 1,B	+ 1,B	+ 1,B	+ 1,B	+	+	29,06	39,90	Pos	+	+	PA	5	b
2013	**600**	**Bone meal 16**	+ 1,B	+ 1,B	+ 1,B	+ 1,B	+	+	29,47	26,81	Pos	+	+	PA	5	b
2013	601	Bone meal 17	+ 2,C	+ 2,C	+ 2,B	+ 2,B	+	+	30,38	28,43	Pos	+	+	PA	5	b
2013	602	Bone meal 18	+ 3,B	+ 3,C	+ 3,B	+ 3,B	+	+	30,54	27,86	Pos	+	+	PA	5	b
2013	603	Bone meal 19	- A	- B	+ 3<5,B	+ 3,B	+	+	30,13	25,50	Pos	+	+	PA	5	b

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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	604	Bone meal 20	+ 2,A	- A	+ 3,A	+ 1,C	+	+	34,61	32,43	Pos	+	+	**PA**	5	b
2013	605	Bone meal 21	+ 3,C	+ 3,C	+ 3,C	+ 3,C	+	+	30,04	20,30	Pos	+	+	**PA**	5	b
2013	606	Bone meal 22	+ 2,C	+ 2,C	+ 2,C	- B	+	+	29,52	30,50	Pos	+	+	**PA**	5	b
2013	578	Bone meal 1	- C	- C	- C	- C	/	-	29,98	Ø	-	/	-	**NA**	5	b
2013	579	Bone meal 2	- B	- C	- B	- C	/	-	28,78	Ø	-	/	-	**NA**	5	b
2013	580	Bone meal 3	- 3,A	- 3,A	- A	- A	-	-	29,28	Ø	-	-	-	**NA**	5	b
2013	581	Bone meal 4	- A	- B	- A	- A	/	-	29,38	Ø	-	/	-	**NA**	5	b
2013	582	Bone meal 5	- B	- B	- B	- B	/	-	28,96	Ø	-	/	-	**NA**	5	b
2013	583	Bone meal 6	- B	- B	- B	- B	/	-	28,87	Ø	-	/	-	**NA**	5	b
2013	584	Bone meal 7	- 3,A	- B	- 3,B	- B	-	-	28,93	Ø	-	-	-	**NA**	5	b
2013	585	Bone meal 8	- C	- C	- C	- C	/	-	29,30	Ø	-	/	-	**NA**	5	b
2013	586	Bone meal 9	- Ø	- Ø	- Ø	- Ø	/	-	29,00	Ø	-	/	-	**NA**	5	b
2013	587	Bone meal 10	- C	- C	- C	- C	/	-	29,73	Ø	-	/	-	**NA**	5	b
2013	**463**	**Rabbit feed**	+ 3	+ 3	+ 3	+ 3	+	+	30,32	20,71	+	+	+	**PA**	5	c
2013	**466**	**Soy beans for animals**	+ 3	+ 3	+ 2	+ 2	+	+	31,35	32,62	+	+	+	**PA**	5	c

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			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**467**	**Bran**	+ 3,C	+ 3,C	+ 2	+ 2	+	**+**	31,28	31,63	+	+	**+**	**PA**	5	c
2013	**468**	**Oil cake**	- Ø	- Ø	- B	- B	/	**-**	30,27	33,07	+	+(1)	**+**	**PD**	5	c
2013	472	Oil cake	- A,3	- A,3	- B,3	- B,3	+	**+**	29,44	27,17	+	+	**+**	**PA**	5	c
2013	473	Oil cake	- A,2	- A,3	- B,3	- A,3	+	**+**	30,71	30,01	+	+	**+**	**PA**	5	c
2013	**576**	**Meat for animals**	+ 2	+ 2	+ 2	+ 2	+	**+**	29,24	29,06	+	+	**+**	**PA**	5	c
2013	10	Meat for animals	- C	- C	- C	- C	/	**-**	31,07	Ø	-	/	**-**	**NA**	5	c
2013	16	Meat for animals	- Ø	- Ø	- Ø	- Ø	/	**-**	32,72	Ø	-	/	**-**	**NA**	5	c
2013	449	Rabbit feed	- Ø	- Ø	- Ø	- Ø	/	**-**	30,31	Ø	-	/	**-**	**NA**	5	c
2013	451	Grain (wheat)	- C	- C	+ 2,C	+ 2,C	-	**-**	30,76	Ø	-	/	**-**	**NA**	5	c
2013	452	Soy beans for animals	- Ø	- Ø	- Ø	- Ø	/	**-**	31,39	Ø	-	/	**-**	**NA**	5	c
2013	453	Bran	- Ø	- Ø	- Ø	- Ø	/	**-**	31,75	Ø	-	/	**-**	**NA**	5	c
2013	471	Oil cake	- C	- C	- B	- A	/	**-**	30,30	36,70	+	-	**-**	**PPNA**	5	c
2013	574	Meat for animals	- C	- C	- C	+ 2,C	-	**-**	29,73	Ø	-	/	**-**	**NA**	5	c
2013	575	Poultry meat for animals	- Ø	- Ø	- Ø	- Ø	/	**-**	29,99	Ø	-	/	**-**	**NA**	5	c
2016	**8213**	**Cattle feed**	+p	+p	+p	+p	+	+	29,64	24,83	+	+	+	**PA**	5	c

ANIMAL FEED AND PET FOOD																	
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2016	**8214**	**Cattle feed**	st	st	st	st	/	-	30,94/32,26/ 31,42	39,15/39,66/ 34,22	?/!/+	-(MSRV:-)	-	**PPNA**	5	c
2021	5202	Cattle feed	-	-	st	st	-	-	29,68	Ø	-	-	-	**NA**	5	c
2021	5203	Cattle feed	-	-	st	st	-	-	Ø/29,74*	39,75/Ø*	X /-*	-	-	**NA**	5	c

PRODUCTION ENVIRONMENTAL SAMPLES																
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**393**	**Swab: siphon**	+	-	+ 3	+ 3	+	**+**	29,56	33,25	+	+	**+**	**PA**	6	a
2013	**399**	**Dairy industry dusts**	+ 3,C	+ 3,C	+ 2	+ 2	+	**+**	30,34	19,90	+	+	**+**	**PA**	6	a
2013	**410**	**Dairy industry dusts**	+ 3<5,A	+ 3<5,A	- A	- A	+	**+**	28,95	19,76	+	+	**+**	**PA**	6	a
2013	**411**	**Food dusts**	+ 1	+ 2	+ 3	+ 4	+	**+**	29,22	multi ct 18,76	+	+	**+**	**PA**	6	a
2013	**412**	**Food dusts**	+ 1	+ 2	+ 3	+ 4	+	**+**	29,57	multi ct 17,85	+	+	**+**	**PA**	6	a
2013	**413**	**Food dusts**	+ 1,C	+ 1,C	+ 2,C	+ 2,C	+	**+**	29,14	multi ct 18,43	+	+	**+**	**PA**	6	a
2013	**415**	**Sponge: siphon**	+ 1,C	+ 1,C	+ 1,B	+ 1,B	+	**+**	28,95	multi ct 18,69	+	+	**+**	**PA**	6	a
2013	469	Residues from food industry	+ A,1	+ A,1	+ A,2	+ A,2	+	**+**	30,43	30,39	+	+	**+**	**PA**	6	a
2013	470	Residues from food industry	+ A,2	+ A,2	+ A,1	+ A,2	+	**+**	29,49	35,29	+	+	**+**	**PA**	6	a
2013	389	Swab: siphon room for dish preparation	- Ø	- Ø	- Ø	- Ø	/	**-**	29,58	Ø	-	/	**-**	**NA**	6	a
2013	405	Dairy industry dusts	- A	- A	- A	- A	/	**-**	29,88	Ø	-	/	**-**	**NA**	6	a
2013	406	Dairy industry dusts	- Ø	- Ø	- Ø	- Ø	/	**-**	30,28	Ø	-	/	**-**	**NA**	6	a
2013	407	Food dusts	- Ø	- Ø	- Ø	- Ø	/	**-**	30,09	Ø	-	/	**-**	**NA**	6	a
2013	408	Food dusts	- Ø	- Ø	- Ø	- Ø	/	**-**	30,01	Ø	-	/	**-**	**NA**	6	a
2013	409	Food dusts	- Ø	- Ø	- Ø	- Ø	/	**-**	29,99	Ø	-	/	**-**	**NA**	6	a

PRODUCTION ENVIRONMENTAL SAMPLES																
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2016	8223	Wipe	-	-	-	-	/	-	28,68	Ø	-	-	-	**NA**	6	a
2016	8224	Wipe	st	-	-	-	/	-	28,60	Ø	-	-	-	**NA**	6	a
2016	8225	Wipe	-	-	-	-	/	-	29,79	Ø	-	-	-	**NA**	6	a
2016	8226	Wipe	-	-	-	-	/	-	29,65	Ø	-	-	-	**NA**	6	a
2016	8227	Wipe	-	-	-	-	/	-	30,57/29,37/ 33,27/30,33*	31,44	+/-/!/-**	-(MSRV:-)	-	**PPNA**	6	a
2013	**430**	**Rinsing water**	+ 2	+ 2	+ 1	+ 1	+	**+**	29,71	18,69	+	+	**+**	**PA**	6	b
2013	**431**	**Ice in food contact**	+ 2	+ 2	+ 1	+ 1	+	**+**	28,89	19,84	+	+	**+**	**PA**	6	b
2013	**432**	**Rinsing water**	+ 1	+ 1	+ 1	+ 1	+	**+**	29,29	19,04	+	+	**+**	**PA**	6	b
2013	**433**	**Rinsing water**	+ 2	+ 2	+ 1	+ 1	+	**+**	28,97	23,34	+	+	**+**	**PA**	6	b
2013	**434**	**Rinsing water**	+ 2	+ 2	+ 1	+ 1	+	**+**	29,46	19,33	+	+	**+**	**PA**	6	b
2013	**435**	**Ice in food contact**	+ 2	+ 2	+ 1	+ 1	+	**+**	29,49	20,63	+	+	**+**	**PA**	6	b
2013	**436**	**Process water (fish)**	+ 2	+ 2	+ 2	+ 2	+	**+**	29,69	36,11	+	+	**+**	**PA**	6	b
2013	**437**	**Process water (meat)**	+ 2	+ 2	+ 2	+ 2	+	**+**	29,25	20,63	+	+	**+**	**PA**	6	b
2013	420	Rinsing water	- Ø	- Ø	- Ø	- Ø	/	**-**	29,44	Ø	-	/	**-**	**NA**	6	b
2013	421	Ice in food contact	- Ø	- Ø	- Ø	- Ø	/	**-**	29,53	Ø	-	/	**-**	**NA**	6	b
2013	422	Rinsing water	- Ø	- Ø	- Ø	- Ø	/	**-**	29,40	Ø	-	/	**-**	**NA**	6	b
2013	423	Rinsing water	- Ø	- Ø	- C	- C	/	**-**	29,51	28,09	+	-	**-**	**PPNA**	6	b

PRODUCTION ENVIRONMENTAL SAMPLES																
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	424	Rinsing water	- Ø	- Ø	- Ø	- Ø	/	-	29,70	Ø	-	/	-	NA	6	b
2013	425	Ice in food contact	- Ø	- Ø	- Ø	- Ø	/	-	30,07	Ø	-	/	-	NA	6	b
2013	426	Process water (fish)	- C	- C	- B	- B	/	-	29,24	Ø	-	/	-	NA	6	b
2013	427	Process water (meat)	- Ø	- Ø	- Ø	- Ø	/	-	29,18	Ø	-	/	-	NA	6	b
2013	428	Process water (pastry)	- C	- C	- Ø	- Ø	/	-	29,90	Ø	-	/	-	NA	6	b
2013	429	Ice in food contact	- Ø	- Ø	- Ø	- Ø	/	-	30,15	Ø	-	/	-	NA	6	b
2016	**8205**	**Wash water**	+p	+p	+p	+p	+	+	29,13	28,00	+	+	+	PA	6	b
2016	**8206**	**Rinse water**	st	st	st	st	/	-	29,43	Ø	-	-	-	NA	6	b
2016	**8207**	**Process water**	+p	+p	+p	+p	+	+	27,98	19,81	+	+	+	PA	6	b
2013	387	Swab: shelf for today's special	+ 3,B	+ 3,B	+ 3,B	+ 3,A	+	+	30,32	37,50	+	+(1)	+	PA	6	c
2013	**390**	**Swab: refrigerator**	+ 3,A	+ 3,A	- A	- A	+	+	30,22	35,49	+	+	+	PA	6	c
2013	**391**	**Swab**	+ 1	+ 2	+ 3	+ 4	+	+	33,81	35,38	+	+	+	PA	6	c
2013	**392**	**Swab**	+ 2	+ 3	+ 4	+ 5	+	+	28,29	23,74	+	+	+	PA	6	c
2013	**394**	**Swab: sink**	+ 2	+ 3	+ 4	+ 5	+	+	29,32	28,71	+	+	+	PA	6	c
2013	**395**	**Swab: shelf**	+ 2,C	+ 2,C	2	2	+	+	30,77	19,21	+	+	+	PA	6	c
2013	**396**	**Swab: cutting board**	+ 2,C	+ 2,C	+ 2,C	+ 2,C	+	+	29,66	multi ct 19,15	+	+	+	PA	6	c

PRODUCTION ENVIRONMENTAL SAMPLES																
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	**397**	**Swab: oven**	+ 2	+ 3	+ 4	+ 5	+	**+**	29,77	multi ct 18,81	+	+	**+**	**PA**	6	c
2013	**398**	**Swab: pot**	+ 2,C	+ 2,C	+ 2,C	+ 2,C	+	**+**	32,32	20,67	+	+	**+**	**PA**	6	c
2013	**414**	**Sponge: dishwasher**	+ 1	+ 2	+ 3	+ 4	+	**+**	29,43	multi ct 18,52	+	+	**+**	**PA**	6	c
2013	**416**	**Sponge: cutting board**	+ 3<5,A	+ 3<5,A	+ 3<5,A	+ 3<5,A	+	**+**	29,50	37,92	+	+	**+**	**PA**	6	c
2013	380	Swab: cutting board	- Ø	- Ø	- Ø	- Ø	/	**-**	30,95	Ø	-	/	**-**	**NA**	6	c
2013	381	Swab: dirty oven	- Ø	- Ø	- Ø	- Ø	/	**-**	30,27	Ø	-	/	**-**	**NA**	6	c
2013	382	Swab: wall	- Ø	- Ø	- Ø	- Ø	/	**-**	29,44	Ø	-	/	**-**	**NA**	6	c
2013	383	Swab: cutting board	- Ø	- Ø	- Ø	- Ø	/	**-**	30,62	Ø	-	/	**-**	**NA**	6	c
2013	384	Swab: shelf storage	- Ø	- Ø	- Ø	- Ø	/	**-**	29,99	Ø	-	/	**-**	**NA**	6	c
2013	385	Swab: bab bottle	- Ø	- Ø	- Ø	- Ø	/	**-**	31,75	Ø	-	/	**-**	**NA**	6	c
2013	386	Swab: cutting board	- Ø	- Ø	- Ø	- Ø	/	**-**	29,34	Ø	-	/	**-**	**NA**	6	c
2013	388	Swab: shelf from fridge	- Ø	- Ø	- Ø	- Ø	/	**-**	29,87	Ø	-	/	**-**	**NA**	6	c
2013	400	Sponge: cutting board	- Ø	- Ø	- Ø	- Ø	/	**-**	29,03	27,32	+	-	**-**	**PPNA**	6	c
2013	401	Sponge: refrigerator butchery	- Ø	- Ø	- Ø	- Ø	/	**-**	29,43	Ø	-	/	**-**	**NA**	6	c

PRODUCTION ENVIRONMENTAL SAMPLES																
Year of analysis	Ref	Sample	Reference method: 6579					Result	Alternative method: Qiagen *mericon Salmonella* spp.					Agreement	Category	Type
			RVS		MKTTn		Conf.		Manual extraction protocol					MR/MA Manual		
			XLD	ASAP	XLD	ASAP			Ct IC	Ct Target	PCR result	Conf.	Final result			
2013	402	Sponge: wall vegetable industry	- C	- C	- C	- C	/	-	29,35	Ø	-	/	-	NA	6	c
2013	403	Sponge: cardboard area	- Ø	- Ø	- Ø	- Ø	/	-	29,18	27,98	+	-	-	PPNA	6	c
2013	404	Sponge: wall of storage room	- Ø	- Ø	- Ø	- Ø	/	-	29,84	Ø	-	/	-	NA	6	c
2013	**418**	**Sponge: shelf**	- Ø	- Ø	- Ø	- Ø	/	-	29,91	Ø	-	/	-	NA	6	c
2013	**419**	**Sponge: spoon**	- Ø	- Ø	- Ø	- Ø	/	-	29,61	Ø	-	/	-	NA	6	c

Appendix 5 - Relative level of detection study: raw data (Initial validation study, 2013 - Extension study, 2021)

Minced meat

Salmonella Typhimurium SAL.1.1.133 Aerobic mesophilic flora: 2.8 10^5/g

Inoculation level	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive/ total	Manual extraction protocol					Positive/ total
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	
/	-	-	-	-	/	-	0/6	30,29	Ø	-	-	-	0/6
	C	B	A	A									
	-	-	-	-	/	-		30,73	Ø	-	-	-	
	C	B	B	A									
	-	-	-	-	/	-		30,19	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	/	-		30,68	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	/	-		30,55	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	/	-		30,38	Ø	-	-	-	
	C	C	A	A									
0,2	-	-	-	-	/	-	0/6	30,69	Ø	-	-	-	0/6
	C	C	A	A									
	-	-	+	-	-	-		30,17	Ø	-	-	-	
	C	C	3,A	A									
	-	-	-	-	/	-		31,22	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	/	-		30,91	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	/	-		31,41	Ø	-	-	-	
	B	B	A	A									
	-	-	-	-	/	-		30,00	Ø	-	-	-	
	B	B	B	B									
0,5	-	-	-	-	/	-	1/6	30,04	Ø	-	-	-	1/6
	C	C	B	B									
	-	-	-	-	/	-		30,22	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	/	-		30,09	Ø	-	-	-	
	C	C	A	A									
	-	+	-	-	+	+		30,05	26,64	+	+	+	
	C	3<5,C	A	A									
	-	-	-	-	/	-		30,61	Ø	-	-	-	
	B	B	A	A									
	-	-	-	-	/	-		30,41	Ø	-	-	-	
	C	C	A	A									
0,8	+	+	+	+	+	+	2/6	29,68	23,35	+	+	+	2/6
	2,C	2,C	1,C	1,C									
	+	+	+	+	+	+		28,95	24,07	+	+	+	
	2,C	2,C	1,C	1,C									
	-	-	-	-	-	-		30,70	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	-	-		29,74	37,53	+	-	-	
	B	B	B	B									
	-	-	-	-	-	-		30,32	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	-	-		30,21	Ø	-	-	-	
	C	B	A	A									
3,0	+	+	+	+	+	+	4/6	29,54	27,22	+	+	+	5/6
	2,C	2,C	3,C	3,C									
	+	+	+	+	+	+		30,31	25,08	+	+	+	
	2,B	2,C	2,C	2,C									
	+	+	+	+	+	+		29,85	22,07	+	+	+	
	2,C	2,C	1,C	1,C									
	+	+	+	+	+	+		30,02	21,02	+	+	+	
	2,C	2,C	1,C	1,C									
	-	-	-	-	-	-		30,03	Ø	-	-	-	
	C	C	A	A									
	+	+	+	+	+	+		29,95	24,89	+	+	+	
	2,C	2,C	2,C	2,C									
4,6	+	+	+	+	+	+	6/6	29,36	22,56	+	+	+	6/6
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		30,03	26,58	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,56	25,91	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		30,23	33,73	+	+	+	
	2,C	2,C	1,C	1,C									
	3,C	3,C	2,C	2,C	+	+		30,45	34,37	+	+	+	
	C	C	A	A									
	+	+	+	+	+	+		29,87	32,25	+	+	+	
	2,C	2,C	3,C	3,C									

Raw milk

Salmonella Newport SAL.1.98 Aerobic mesophilic flora: 3.0 10^4/g

Cont.	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive/ total	Manual extraction protocol					
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	Positive/ total
0	-	-	-	-	-	-	0/6	30,87	∅	-	-	-	0/6
	C	C	A	A									
	-	-	-	-	-	-		30,03	38,92	+	-	-	
	C	C	A	A									
	-	-	-	-	-	-		30,35	∅	-	-	-	
	B	C	A	A									
	-	-	-	-	-	-		30,27	∅	-	-	-	
	C	C	A	A									
	-	-	-	-	-	-		30,78	∅	-	-	-	
	C	B	A	A									
	-	-	-	-	-	-		30,15	∅	-	-	-	
	C	C	A	A									
0.3	-	-	-	-	-	-	1/6	30,60	∅	-	-	-	0/6
	C	C	A	A									
	-	-	-	-	-	-		30,44	∅	-	-	-	
	B	B	A	A									
	-	-	-	-	-	-		33,72	∅	-	-	-	
	C	C	A	A									
	-	-	-	-	-	-		31,04	∅	-	-	-	
	C	C	A	A									
	+	+	-	-	-	+		29,80	∅	-	+	-	
	3,C	3,C	A	A									
	-	-	-	-	-	-		30,26	∅	-	-	-	
	B	B	A	A									
0.4	-	-	-	-	-	-	1/6	30,74	∅	-	-	-	1/6
	C	B	A	A									
	-	-	-	-	-	-		30,41	∅	-	-	-	
	C	C	A	A									
	-	-	-	-	-	-		30,69	∅	-	-	-	
	C	B	A	A									
	-	-	-	-	-	-		30,19	∅	-	-	-	
	C	C	A	A									
	+	+	+	+	+	+		30,85	37,54	+	+	+	
	3,C	3,C	3<5,A	3<5,A									
	-	-	-	-	-	-		30,71	∅	-	-	-	
	C	C	A	A									
2	+	+	+	-	+	+	5/6	30,27	∅	-	+	-	4/6
	2,C	2,C	3,A	A									
	-	-	-	-	-	-		30,15	∅	-	-	-	
	C	C	A	A									
	+	+	+	-	+	+		29,92	32,81	+	+	+	
	2,C	2,C	2,A	A									
	+	+	+	+	+	+		31,28	38,53	+	+	+	
	2,C	2,C	2,A	2,A									
	+	+	+	-	+	+		29,86	35,56	+	+	+	
	3,C	2,C	3,A	A									
	+	+	+	+	+	+		30,35	38,22	+	+	+	
	2,C	2,C	3,A	3,A									
3,6	+	+	-	+	+	+	6/6	30,52	32,96	+	+	+	6/6
	3	3	A	3<5,A									
	+	+	+	+	+	+		29,72	31,25	+	+	+	
	3,C	3	3<5,A	3<5,A									
	+	+	+	+	+	+		29,63	31,6	+	+	+	
	2,C	2,C	3<5,A	3<5,A									
	+	+	+		+	+		30,70	33,02	+	+	+	
	2,C	2,C	3<5,A	3<5,A									
	+	+	+	+	+	+		29,59	28,9	+	+	+	
	3,C	3,C	3<5,A	3<5,A									
	+	+	+	+	+	+		29,92	32,28	+	+	+	
	3,C	2,C	3<5,A	3<5,A									

Raw fish

Salmonella London SAL.1.80 Aerobic mesophilic flora: 6.8 10^3/g

Contamination level (CFU/sample)	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive /total	Manual extraction protocol					
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	Positive /total
/	-	-	+	+	-	-	0/6	29,90	Ø	-	/	-	0/6
	C	C	3,C	3,C									
	+	+	+	+	-	-		29,80	Ø	-	/	-	
	3,B	3,B	3,B	3,B									
	+	-	+	+	-	-		29,60	Ø	-	/	-	
	3		3,B	3,B									
	-	-	+	-	-	-		29,97	Ø	-	/	-	
	C	C	3,B	B									
	+	-	+	+	-	-		30,47	Ø	-	/	-	
	3<5,C	C	3,C	3,C									
	-	-	+	+	-	-		29,87	Ø	-	/	-	
			3,C	3,C									
0,3	+	+	+	+	-	-	0/6	30,24	Ø	-	/	-	0/6
	3	3,C	3,B	3,B									
	+	+	+	+	-	-		29,56	Ø	-	/	-	
	3<5,B	3,<5	3,C	3,C									
	+	+	+	+	-	-		29,78	Ø	-	/	-	
	3	3	2,C	2,C									
	-	-	+	+	-	-		29,43	37,81	+	-	-	
	C	C	3,B	3,B									
	+	+	+	+	-	-		30,17	Ø	-	/	-	
	3,C	3,C	3,C	3,C									
	+	-	+	+	-	-		29,42	Ø	-	/	-	
	3,C	C	2,C	2,C									
0,7	+	-	+	-	-	-	1/6	30,00	Ø	-	/	-	1/6
	3,C	C	3,B	B									
	+	+	+	+	-	-		30,32	Ø	-	/	-	
	3,C	3,C	2,C	3,C									
	+	+	+	-	-	-		29,77	Ø	-	/	-	
	3,C	3,C	2,C	B									
	+	+	+	+	+	+		29,97	33,29	+	+	+	
	2,C	2,C	2,B	2,C									
	+	+	+	+	-	-		29,39	Ø	-	/	-	
	3,C	3,C	2,C	2,C									
	+	+	+	+	-	-		30,15	Ø	-	/	-	
	3,C	3,C	3,C	3,C									
1,3	+	+	+	+	-	-	4/6	30,03	Ø	-	/	-	4/6
	3,C	3,C	3,C	3,C									
	+	+	+	+	+	+		29,30	30,05	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,34	29,58	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,60	25,15	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,08	27,72	+	+	+	
	3,C	3,C	3,C	3,C									
	+	+	+	+	-	-		30,12	36,41	+	-	-	
	3,C	3,C	3,C	3,C									
2,8	+	+	+	+	+	+	6/6	29,83	28,65	+	+	+	6/6
	2,C	2,C	2,C	3,B									
	+	+	+	+	+	+		29,94	28,2	+	+	+	
	2	2	2	2									
	+	+	+	+	+	+		28,95	25,05	+	+	+	
	2	2	2	2									
	+	+	+	+	+	+		29,43	27,61	+	+	+	
	2	2	2	2									
	+	+	+	+	+	+		29,47	23,26	+	+	+	
	3,C	3,C	2,C	2,C									
	+	+	+	+	+	+		28,98	25,08	+	+	+	
	2,C	2,C	2,C	2,C									

Bagged spinach **Extension - 2021**
***Salmonella* Virchow F276**
Seeding protocol: 48h 5±3°C
Aerobic mesophilic flora: 6,0.10^{7} CFU/g

N° Sample	Level	Inoculation (cfu/25g)	ISO 6579-1 method♦						Alternative method-Manuel extraction protocol					
			MKTTn		RVS		Final result	Positive/ Total	Ct CI	Ct Target	PCR result	Conf	Final result	Positive/ Total
			XLD	ASAP	XLD	ASAP								
4129	1	0	-	-	-	-	-	0/5	29,16	Ø	-	-	-	0/5
4130			-	-	-	-	-		28,76	Ø	-	-	-	
4131			-	-	-	-	-		29,10	Ø	-	-	-	
4132			-	-	-	-	-		29,25	Ø	-	-	-	
4133			-	-	-	-	-		28,76	Ø	-	-	-	
4167	2	1,4	-	-	-	-	-	11/20	29,01	Ø	-	-	-	11/20
4168			+M	+M	+m	+p	+		29,35	30,56	+	+	+	
4169			+1/2	+M	+M	+M	+		28,59	31,11	+	+	+	
4170			-	-	-	-	-		28,85	Ø	-	-	-	
4171			-	-	-	-	-		28,76	Ø	-	-	-	
4172			-	-	-	-	-		29,09	Ø	-	-	-	
4173			-	-	-	-	-		28,89	Ø	-	-	-	
4174			+M	+M	+1/2	+m	+		29,36	29,51	+	+	+	
4175			+M	+M	+m	+m	+		28,22	26,18	+	+	+	
4176			+m	+M	+m	+m	+		28,97	30,08	+	+	+	
4177			+m	+M	+M	+M	+		29,36	31,81	+	+	+	
4178			+M	+M	+m	+M	+		28,84	29,20	+	+	+	
4179			+M	+M	+m	+M	+		28,70	28,44	+	+	+	
4180			-	-	-	-	-		29,26	Ø	-	-	-	
4181			-	-	-	-	-		28,84	Ø	-	-	-	
4182			+M	+M	+M	+M	+		28,00	26,61	+	+	+	
4183			-	-	-	-	-		28,63	Ø	-	-	-	
4184			+M	+M	+m	+m	+		29,37	29,59	+	+	+	
4185			-	-	-	-	-		28,96	Ø	-	-	-	
4186			+M	+M	+m	+1/2	+		28,89	29,87	+	+	+	
4187	3	4,0	+M	+M	+m	+m	+	4/5	28,87	29,16	+	+	+	4/5
4188			+m	+M	+m	+1/2	+		28,78	27,97	+	+	+	
4189			+m	+M	+M	+M	+		29,08	31,16	+	+	+	
4190			-	-	-	-	-		29,26	Ø	-	-	-	
4191			+m	+M	+m	+p	+		28,40	27,83	+	+	+	

♦ Analyses performed according to the COFRAC accreditation

Egg product
Salmonella Enteritidis SAL.1.48 Aerobic mesophilic flora: 80 CFU/g

Cont.	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive/total	Manual extraction protocol					
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	Positive/total
/	-	-	-	-	-	-	0/6	33,28	Ø	-	-	-	0/6
	B	B	B	B									
	-	-	-	-	-	-		32,12	Ø	-	-	-	
	B	B	B	B									
	-	-	-	-	-	-		29,68	39,43	+	-	-	
	B	B	C	B									
	-	-	-	-	-	-		36,19	Ø	-	-	-	
	A	A	B	B									
	-	-	-	-	-	-		30,64	Ø	-	-	-	
	B	B	C	C									
	-	-	-	-	-	-		30,96	Ø	-	-	-	
	B	B	C	C									
0,4	-	-	-	-	-	-	1/6	33,16	Ø	-	-	-	1/6
	A	A	C	C									
	+	+	+	+	+	+		Ø	39,61	+	+	+	
	2B	2B	1C	1C									
	-	-	-	-	-	-		37,75	Ø	-	-	-	
	A	A	C	C									
	-	-	-	-	-	-		33,25	Ø	-	-	-	
	B	A	B	A									
	-	-	-	-	-	-		37,98	Ø	-	-	-	
	A	A	C	C									
	-	-	-	-	-	-		38,64	Ø	-	-	-	
	A	A	A	A									
0,74	+	+	+	+	+	+	3/6	inh	36,43	+	+	+	3/6
	2A	2A	1C	1C									
	+	+	+	+	+	+		inh	36,52	+	+	+	
	2A	2A	1C	1C									
	-	-	-	-	-	-		34,30	Ø	-	-	-	
	A	B	C	C									
	-	-	-	-	-	-		37,49	Ø	-	-	-	
	A	A	B	C									
	+	+	+	+	+	+		35,89	36,47	+	+	+	
	1C	1C	1C	1C									
	-	-	-	-	-	-		36,34	Ø	-	-	-	
	A	A	B	C									
1,0	-	-	-	-	-	-	5/6	36,10	Ø	-	-	-	4/6
	B	A	A	A									
	+	+	+	+	+	+		36,59	36,91	+	+	+	
	1C	2B	1C	1C									
	+	+	+	+	+	+		35,16	34,54	+	+	+	
	1B	1B	1C	1C									
	+	+	+	+	+	+		30,67	23,80	+	+	+	
	1C	1B	1C	1									
	+	+	+	+	+	+		31,24	19,07	+	+	+	
	2	2	1	1									
	+	+	+	+	+	+		30,70	Ø	-	+	-	
	1B	1B	1B	1B									
2,4	+	+	+	+	+	+	6/6	29,51	21,52	+	+	+	6/6
	1C	1A	1C	1A									
	+	+	+	+	+	+		30,94	23,51	+	+	+	
	1B	1B	1B	1B									
	+	+	+	+	+	+		29,49	22,38	+	+	+	
	1A	2A	1B	1B									
	+	+	+	+	+	+		36,15	30	+	+	+	
	1B	1B	1B	1A									
	+	+	+	+	+	+		31,65	27,06	+	+	+	
	1B	1B	1B	1A									
	+	+	+	+	+	+		30,37	22,17	+	+	+	
	1B	1B	1B	1B									

Cat feed

Salmonella Infantis SAL.1.69 Aerobic mesophilic flora: 1.5 10^2 CFU/g

Cont.	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive/ total	Manual extraction protocol					Positive/ total
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	
/	-	-	-	-	-	-	0/6	32.47	Ø	-	-	-	0/6
	Ø	Ø	Ø	Ø									
	-	-	-	-	-	-		30.65	Ø	-	-	-	
	C	C	A	A									
	-	-	-	-	-	-		30.77	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	-	-	-	-	-	-		31.40	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	-	-	-	-	-	-		25.84	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	-	-	-	-	-	-		30.58	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
0.1	+	+	+	+	+	+	3/6	29.46	32.74	+	+	+	3/6
	1	1	1	1									
	-	-	-	-	-	-		30.82	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	+	+	+	+	+	+		30.40	22.50	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		27.43	27.90	+	+	+	
	2	1	2	1									
	-	-	-	-	-	-		26.61	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	-	-	-	-	-	-		27.89	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
0.6	+	+	+	+	+	+	4/6	31.06	21.12	+	+	+	4/6
	1	1	1	1									
	+	+	+	+	+	+		27.94	23.45	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		31.36	22.99	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		30.37	29.28	+	+	+	
	1	1	1	1									
	-	-	-	-	-	-		31.91	Ø	-	-	-	
	B	B	C	C									
	-	-	-	-	-	-		31.37	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
0.9	+	+	+	+	+	+	5/6	33.27	Ø	-	-	-	4/6
	2	2	1	1									
	+	+	+	+	+	+		28.76	26.10	+	+	+	
	2	2	1	1									
	+	+	+	+	+	+		28.47	32.48	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		27.06	22.45	+	+	+	
	2	2	1	1									
	-	-	-	-	-	-		30.07	Ø	-	-	-	
	Ø	Ø	Ø	Ø									
	+	+	+	+	+	+		27.86	26.63	+	+	+	
	1	1	1	1									
2.1	+	+	+	+	+	+	6/6	30.26	27.91	+	+	+	5/6
	1	1	1	1									
	+	+	+	+	+	+		29.92	23.15	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		29.43	27.57	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		26.77	28.51	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		26.55	22.69	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		29.92	Ø	-	+	-	
	1	1	1	1									
5,4	+	+	+	+	+	+	6/6	30.74	26.17	+	+	+	6/6
	1	2	1	1									
	+	+	+	+	+	+		27.39	21.54	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		28.61	28.09	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		31.27	30.54	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		30.87	30.13	+	+	+	
	1	1	1	1									
	+	+	+	+	+	+		29.29	24.84	+	+	+	
	1	1	1	1									

Process water

Salmonella Mbandaka SAL.1.85 Aerobic mesophilic flora: 2.6 10^4/g

Cont.	Reference method							Alternative method					
	RVS		MKTTn		Conf.	Result	Positive/ total	Manual extraction protocol					
	XLD	HK	XLD	HK				Ct Inh	Ct Res	Test result	Conf.	Final result	Positive/ total
/	-	-	-	-	-	-	0/6	29,36	Ø	-	-	-	0/6
	C	C	B	B									
	-	-	-	-	-	-		30,70	Ø	-	-	-	
	B	B	B	B									
	-	-	-	-	-	-		29,46	38,46	+	-	-	
	B	B	B	B									
	-	-	-	-	-	-		30,15	Ø	-	-	-	
	B	B	B	B									
	-	-	-	-	-	-		30,09	Ø	-	-	-	
	B	B	B	B									
	-	-	-	-	-	-		29,89	Ø	-	-	-	
	B	B	A	A									
0,3	-	-	-	-	-	-	0/6	30,32	Ø	-	-	-	0/6
	C	C	B	B									
	-	-	-	-	-	-		29,71	Ø	-	-	-	
	B	B	B	B									
	-	-	-	-	-	-		29,75	Ø	-	-	-	
	B	B	B	A									
	-	-	-	-	-	-		29,84	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	-	-		30,17	36,5	+	-	-	
	C	C	C	C									
	-	-	-	-	-	-		29,88	Ø	-	-	-	
	B	B	B	B									
0,5	+	+	+	+	+	+	2/6	29,09	22,04	+	+	+	2/6
	2,C	2,C	1,C	1,C									
	-	-	-	-	-	-		28,46	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	-	-		29,30	Ø	-	-	-	
	B	B	B	B									
	+	+	+	+	+	+		29,11	23,48	+	+	+	
	2,C	2,C	2,C	2,C									
	-	-	-	-	-	-		29,35	Ø	-	-	-	
	C	C	B	B									
	-	-	-	-	-	-		29,13	Ø	-	-	-	
	B	B	B	B									
0,9	+	+	+	+	+	+	4/6	29,53	27,93	+	+	+	4/6
	2,C	2,C	2,C	2,C									
	-	-	-	-	-	-		30,13	Ø	-	-	-	
	C	B	B	B									
	+	+	+	+	+	+		29,33	25,82	+	+	+	
	2,C	2,C	2,C	2,C									
	-	-	-	-	-	-		29,60	Ø	-	-	-	
	B	C	B	B									
	+	+	+	+	+	+		29,77	26,53	+	+	+	
	2	2,C	2,C	2,C									
	+	+	+	+	+	+		29,32	24,66	+	+	+	
	2,C	2,C	1,C	1,C									
2,8	+	+	+	+	+	+	6/6	29,55	24,83	+	+	+	6/6
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,52	22,88	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,53	24,91	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,35	24,51	+	+	+	
	2,C	2,C	2,C	2,C									
	+	+	+	+	+	+		29,49	24,79	+	+	+	
	2,C	2	2,C	2,C									
	+	+	+	+	+	+		29,91	25,06	+	+	+	
	2	2,C	2,C	2,C									

Appendix 6 - Inclusivity and exclusivity: raw data (Initial validation study, ISHA - 2013 and Extension study, ADRIA Développement - 2016)

AFNOR INCLUSIVITY (Initial Validation study)						
N°	Code	Microorganism	Origin	Ct inh	Ct res	Confir-mation
1	SAL.1.5	*Salmonella* Anatum	Sesame	30,06	22,64	Positive
2	SAL.1.7	*Salmonella arizonae* (48 : z4, z23 :-)	Duck	30,00	25,72	Positive
3	SAL.1.8	*Salmonella arizonae* (18 : z4, z23 :-)	Duck	29,90	25,51	Positive
4	SAL.1.10	*Salmonella* Braenderup	Workshop environment	30,66	27,63	Positive
5	SAL.1.17	*Salmonella* Brandenburg	Duck	29,95	23,58	Positive
6	SAL.1.21	*Salmonella* Bredeney	Raw chicken filet	29,03	25,82	Positive
7	SAL.1.23	*Salmonella* Cerro	Rabbit meal	30,01	23,47	Positive
8	SAL.1.29	*Salmonella* Derby	Pork	28,85	24,03	Positive
9	SAL.1.40	*Salmonella diarizonae (S.IIIb 38,Iv:z53)*	Semolina	30,07	25,29	Positive
10	SAL.1.187	*Salmonella diarizonae* (S.IIIb 61:k:1,5,7)	Fish	30,67	25,86	Positive
11	SAL.1.43	*Salmonella* Dublin	Milk	29,95	25,31	Positive
12	SAL.1.47	*Salmonella* Enteritidis	Chicken	29,70	25,73	Positive
13	SAL.1.170	*Salmonella* Gallinarum	Guinea fowls breeding	30,56	29,91	Positive
14	SAL.1.57	*Salmonella* Hadar	Poultry escalope	29,79	23,51	Positive
15	SAL.1.60	*Salmonella* Havana	Workshop environment	28,74	21,64	Positive
16	SAL.1.61	*Salmonella* Heidelberg	Poultry meat	30,62	29,23	Positive
17	SAL.1.62	*Salmonella houtenae*	Workshop environment	30,19	26,34	Positive
18	SAL.1.64	*Salmonella* Indiana	Beef filet	30,05	25,64	Positive
19	SAL.1.163	*Salmonella* Infantis	Milk	29,95	24,31	Positive
20	SAL.1.169	*Salmonella* Kedougou	Pork rind	29,99	21,50	Positive
21	SAL.1.76	*Salmonella* Kottbus	Raw turkey meat	29,82	22,37	Positive
22	SAL.1.78	*Salmonella* Livingstone	Workshop environment	29,47	22,25	Positive
23	SAL.1.83	*Salmonella* London	Poultry slaughterhouse	29,20	25,64	Positive
24	SAL.1.84	*Salmonella* Manhattan	Bovine meat	30,74	22,48	Positive
25	SAL.1.85	*Salmonella* Mbandaka	Guinea fowl	30,36	23,18	Positive
26	SAL.1.91	*Salmonella* Montevideo	Beef tartare	30,38	23,33	Positive
27	SAL.1.97	*Salmonella* Napoli	Duck	30,68	26,51	Positive
28	SAL.1.98	*Salmonella* Newport	Raw milk cheese	30,12	25,23	Positive
29	SAL 1.101	*Salmonella* Orion	Duck	30,29	26,50	Positive
30	SAL.1.102	*Salmonella* Paratyphi A	CIP 55 39	29,55	28,35	Positive
31	SAL.1.110	*Salmonella* Paratyphi B	Raw chicken filet	29,93	26,12	Positive
32	SAL.1.205	*Salmonella* Paratyphi C	CIP 106175	30,19	28,36	Positive
33	SAL.1.114	*Salmonella* Poona	Workshop environment	30,32	20,30	Positive
34	SAL.1.115	*Salmonella* Regent	Duck	30,26	21,45	Positive
35	SAL.1.116	*Salmonella* Rissen	Workshop environment	29,86	22,38	Positive
36	SAL.1.120	*Salmonella* Saint-Paul	Frozen meat	30,13	23,54	Positive
37	SAL.1.121	*Salmonella salamae*	Raw milk	30,27	19,99	Positive
38	SAL 1.122	*Salmonella* Schwarzengrund	Raw pork meat	31,56	21,58	Positive
39	SAL.1.129	*Salmonella* Typhi	CIP 54 136	31,78	20,91	Positive
40	SAL.1.147	*Salmonella* Typhimurium	Frozen cordon bleu	31,16	23,87	Positive
41	SAL.1.158	*Salmonella* Virchow	11337 (intox)	30,56	24,52	Positive
42	SAL.1.181	*Salmonella bongori*	Workshop environment	29,82	23,28	Positive

AFNOR INCLUSIVITY (Initial Validation study)						
N°	**Code**	**Microorganism**	**Origin**	**Ct inh**	**Ct res**	**Confir-mation**
43	SAL.1.182	*Salmonella* Typhimurium variant immobile (S.I 1,4,[5],12:-:-)	Tiramisu	29,82	20,68	Positive
44	SAL.1.183	*Salmonella* Typhimurium variant monophasique (S.I 1,4,[5],12:i:-)	Pork "à la tahitienne"	30,61	26,40	Positive
45	SAL.1.184	*Salmonella* Typhimurium variant monophasique (S.I 1,4,[5],12:-:1,2)	Hen breeding environment	30,22	33,21	Positive
46	SAL.1.185	*Salmonella* Blockley	Hen breeding environment	29,32	25,01	Positive
47	SAL.1.25	*Salmonella* Colindale	Basil	30,85	23,11	Positive
48	SAL.1.63	*Salmonella* Idikan	Workshop environment	30,09	26,39	Positive
49	SAL.1.87	*Salmonella* Mikawasima	Fresh fruit salad	30,08	24,57	Positive
50	SAL.1.153	*Salmonella* Urbana	kangaroo stew	30,19	26,13	Positive
51	SAL.1.160	*Salmonella* Westhampton	Turkey	29,92	25,48	Positive
52	SAL.1.70	*Salmonella* Javiana	Dried mushrooms	30,12	22,88	Positive
53	SAL.1.208	*Salmonella indica*	Workshop environment	30,17	26,41	Positive

INCLUSIVITY (Extension study, 2016)											
N°	**Strain**		**Reference**	**Origin**	**Inocu-lation level/ 225ml**	**Alternative method : Qiagen *mericon Salmonella***			**Confirmation**		
						Re-sult	**Ct (target)**	**Ct (IC)**	**XLD**	**ASAP**	**Latex**
2	*Salmonella*	Aberdeen	CIP 105618	/	39	⊗	18,61	26,88	+	+	+
8	*Salmonella*	*arizonae* 51:z4,z23	CIP 5523	Turkey meat	36	⊗	19,16	27,35	+	+	+
18	Salmonella	Caracas	Ad2322	Spice	59	+	18,22	28,02	+	+	+
20	*Salmonella*	Chester	CIP 103543	/	25	⊗	19,53	27,12	+	+	+
29	Salmonella	Gaminara	Ad2324	Boar meat	38	+	18,96	28,19	+	+	+
36	Salmonella	Hvittingfoss	Ad2325	Raw stuff	32	⊗	18,12	27,74	+	+	+
39	Salmonella	*indica* 11:b:e,n,x	Ad2337	Chicken breeding environment	13	+	18,85	28,45	+	+	+
54	*Salmonella*	Meleagridis	505	Raw milk	22	⊗	18,16	27,90	+	+	+
55	Salmonella	Michigan	Ad2327	Low moisture sausage	25	+	18,20	28,06	+	+	+
58	Salmonella	Missisipi	Ad2329	Parakeet	22	+	18,54	28,92	+	+	+
68	*Salmonella*	Panama	Adria 8	Ground beef	15	⊗	18,87	27,57	+	+	+
74	Salmonella	Putten	Ad2331	Feed for chicken	55	+	20,51	28,45	+	+	+
82	*Salmonella*	Stanley	Ad 1688	Chocolate industry	28	⊗	18,20	27,64	+	+	+
94	*Salmonella*	Veneziana	Adria 233	Food product	27	⊗	17,84	27,41	+	+	+
96	Salmonella	Wandsworth	Ad2335	Fillet of mullet	28	+	17,95	28,13	+	+	+
99	Salmonella	Weltevreden	Ad2336	Treated water	30	⊗	19,42	27,69	+	+	+

AFNOR EXCLUSIVITY (Initial Validation study)						
N°	Code	Microorganism	Origin	Ct inh	Ct res	Confirmation
1	CIT.1.1	*Citrobacter freundii*	CIP 53.62	29,72	Ø	/
2	CIT.1.2	*Citrobacter freundii*	ATCC 8090	31,44	Ø	/
3	CIT.2.4	*Citrobacter koseri*	Secondary wastewater	30,37	Ø	/
4	CIT.2.1	*Citrobacter koseri*	CIP 72.11	31,53	Ø	/
5	CIT.2.2	*Citrobacter diversus*	CIP 82.87 T	30,95	Ø	/
6	CIT.2.3	*Citrobacter diversus*	CIP 82.94	30,51	Ø	/
7	ENTB.1.1	*Enterobacter aerogenes*	Dairy industry	30,26	Ø	/
8	ENTB.2.1	*Enterobacter cloacae*	Wastewater	30,11	Ø	/
9	ENTB.3.1	*Enterobacter sakazakii*	Powder milk	30,22	Ø	/
10	ENTB.3.2	*Enterobacter sakazakii*	CIP 57.33	31,98	Ø	/
11	ESC.1.6	*Escherichia coli*	Chicken ravioli	30,42	Ø	/
12	ESC.1.3	*Escherichia coli*	Dairy industry	29,80	Ø	/
13	ESC.2.1	*Escherichia hermanii*	CIP 103176	30,48	Ø	/
14	ESC.3.1	*Escherichia vulneris*	CIP 103177T	32,95	Ø	/
15	HAF.1.1	*Hafnia alvei*	Tabouleh	30,87	Ø	/
16	HAF.1.2	*Hafnia alvei*	CNRZ 713	29,85	Ø	/
17	KLE.1.1	*Klebsiella oxytoca*	Soya salad	30,33	Ø	/
18	KLE.2.1	*Klebsiella pneumoniae*	Pastry	30,38	Ø	/
19	PAN.1.1	*Pantoea agglomerans*	A181	31,55	Ø	/
20	PRO.1.1	*Proteus mirabilis*	CIP 103181	29,94	Ø	/
21	PRO.2.1	*Proteus vulgaris*	Environment industry	30,19	Ø	/
22	PSE.1.2	*Pseudomonas aeruginosa*	Omelette gruyère	30,01	Ø	/
23	PSE.2.2	*Pseudomonas fluorescens*	CIP102127	30,21	Ø	/
24	SER.1.1	*Serratia ficaria*	CIP 79.23	31,37	Ø	/
25	SER.2.1	*Serratia fonticola*	CIP 103580	30,57	Ø	/
26	SER.3.1	*Serratia marcescens*	Environment industry	31,64	Ø	/
27	SHI.1.1	*Shigella flexneri*	CIP 82.48T	31,00	Ø	/
28	SHI.2.1	*Shigella sonnei*	ATCC 9290	30,38	Ø	/
29	PROV.1.1	*Providencia stuartii*	HPA RM	30,53	Ø	/
30	YER 1.1	*Yersinia enterocolitica*	CIP 80.27	29,83	Ø	/

Appendix 7 - AOAC Inclusivity & exclusivity: raw data

QIAGEN Salmonella AOAC-RI PTM

AOAC INCLUSIVITY					
Genus (serovar included)	Source	Source	*mericon*™ Salmonella spp. Kit		Result
			Green	Yellow	
Salmonella bongori, Serotype Brookfield	NCTC	10946	25,52	29,83	Positive
Salmonella bongori	ATCC	43975	24,18	30,14	Positive
Salmonella bongori	NCTC	12419	24,71	29,57	Positive
Salmonella enterica subsp. *salamae*	Q Labs Isolate	QL02415	30,68	30,76	Positive
Salmonella enterica subsp. *salamae* serovar Artis	ATCC	700149	28,27	31,66	Positive
Salmonella enterica subsp. *salamae* serovar Basel	ATCC	700151	26,46	30,33	Positive
Salmonella enterica subsp. *arizonae*	Q Labs Isolate	QL11007-4	26,07	29,56	Positive
Salmonella enterica subsp. *arizonae*	ATCC	BAA-1577	26,91	29,4	Positive
Salmonella enterica subsp. *arizonae*	ATCC	13314	26,5	30,03	Positive
Salmonella enterica subsp. *diarizonae*	ATCC	BAA-639	29,63	30,21	Positive
Salmonella enterica subsp. *diarizonae*	ATCC	BAA-216	29,31	29,8	Positive
Salmonella enterica subsp. *diarizonae*	ATCC	BAA-1579	28,2	30,62	Positive
Salmonella enterica subsp. *houtenae* serovar Halmstad	Q Labs Isolate	QL024.1	26,67	30,02	Positive
Salmonella enterica subsp. *houtenae* serovar Harmelen	ATCC	15783	25,87	31,89	Positive
Salmonella enterica subsp. *houtenae* serovar Ochsenzoll	ATCC	29932	25,75	29,66	Positive
Salmonella enterica subsp. *indica*	ATCC	43976	27,61	30,49	Positive
Salmonella enterica subsp. *indica*	ATCC	NCTC 10458	25,79	29,01	Positive
Salmonella enterica subsp. *indica*	ATCC	BAA-1578	29,16	30,32	Positive
Salmonella enterica subsp. *enterica* serovar Abaetetuba	ATCC	35640	29,7	31,08	Positive
Salmonella enterica subsp. *enterica* serovar Abony	NCTC	6017	26,59	29,77	Positive
Salmonella enterica subsp. *enterica* serovar Abortusequi	FDA	9842	26,18	29,77	Positive
Salmonella enterica subsp. *enterica* serovar Abortusovis	NCTC	10241	26,78	30,88	Positive
Salmonella enterica subsp. *enterica* serovar Adelaide	UPENN	STS 2	29,76	30,19	Positive
Salmonella enterica subsp. *enterica* serovar Agama	UPENN	STS 3	26,02	29,92	Positive
Salmonella enterica subsp. *enterica* serovar Agona	ATCC	51957	28,03	30,52	Positive
Salmonella enterica subsp. *enterica* serovar Agoueve	UPENN	STS 5	28,14	30,14	Positive
Salmonella enterica subsp. *enterica* serovar Alachua	UPENN	STS 6	27,37	30,38	Positive
Salmonella enterica subsp. *enterica* serovar Albany	UPENN	STS 7	28,05	29,86	Positive

AOAC INCLUSIVITY					
Genus (serovar included)	Source	Source	*mericon*™ Salmonella spp. Kit		Result
			Green	Yellow	
Salmonella enterica subsp. *enterica* serovar Anatum	ATCC	9270	28,1	31	Positive
Salmonella enterica subsp. *enterica* serovar Arkansas	UPENN	STS 11	26,53	30,05	Positive
Salmonella enterica subsp. *enterica* serovar Bareilly	UPENN	STS 12	30,93	31,04	Positive
Salmonella enterica subsp. *enterica* serovar Berta	UPENN	STS 13	30,33	31,04	Positive
Salmonella enterica subsp. *enterica* serovar Binza	UPENN	STS 14	26,19	30,57	Positive
Salmonella enterica subsp. *enterica* serovar Bovis-Morbificans	UPENN	STS 16	26,35	29,74	Positive
Salmonella enterica subsp. *enterica* serovar Brandenburg	UPENN	STS 18	21,84	20,01	Positive
Salmonella enterica subsp. *enterica* serovar Bredeney	NCTC	5731	30,42	30,34	Positive
Salmonella enterica subsp. *enterica* serovar California	NCTC	6018	17,89	14,9	Positive
Salmonella enterica subsp. *enterica* serovar Cerro	UPENN	STS 22	28,02	30,28	Positive
Salmonella enterica subsp. *enterica* serovar Choleraesuis	ATCC	10708	26,22	29,3	Positive
Salmonella enterica subsp. *enterica* serovar Choleraesuis var Kunzendorf	ATCC	12001	30,47	31,15	Positive
Salmonella enterica subsp. *enterica* serovar Cubana	UPENN	STS 24	26,55	30,05	Positive
Salmonella enterica subsp. *enterica* serovar Derby	NCTC	5721	28,12	29,73	Positive
Salmonella enterica subsp. *enterica* serovar Drypool	UPENN	STS 26	26,23	29,92	Positive
Salmonella enterica subsp. *enterica* serovar Dublin	UPENN	STS 27	25,43	29,47	Positive
Salmonella enterica subsp. *enterica* serovar Eastbourne	FDA	4017H	30,74	29,82	Positive
Salmonella enterica subsp. *enterica* serovar Enteritidis	ATCC	13076	28,93	29,56	Positive
Salmonella enterica subsp. *enterica* serovar Galiema	Q Labs Isolate	QL024.2	30,87	30,58	Positive
Salmonella enterica subsp. *enterica* serovar Give	UPENN	STS 42	26,56	30,08	Positive
Salmonella enterica subsp. *enterica* serovar Haardt	UPENN	STS 44	26,39	29,8	Positive
Salmonella enterica subsp. *enterica* serovar Hadar	ATCC	51956	25,9	29,5	Positive
Salmonella enterica subsp. *enterica* serovar Havana	UPENN	STS 47	29	29,64	Positive
Salmonella enterica subsp. *enterica* serovar Heidelberg	ATCC	8326	26,56	29,99	Positive
Salmonella enterica subsp. *enterica* serovar Heidelberg	NCTC	5717	26,68	29,52	Positive

AOAC INCLUSIVITY					
Genus (serovar included)	**Source**	**Source**	***mericon*™ Salmonella spp. Kit**		**Result**
			Green	**Yellow**	
Salmonella enterica subsp. *enterica* serovar Indiana	NCTC	11304	29,3	31,1	Positive
Salmonella enterica subsp. *enterica* serovar Infantis	ATCC	51741	27,01	29,59	Positive
Salmonella enterica subsp. *enterica* serovar Javiana	ATCC	10721	33,32	33,42	Positive
Salmonella enterica subsp. *enterica* serovar Jerusalem	Q Labs Isolate	QL024.12	28,94	29,9	Positive
Salmonella enterica subsp. *enterica* serovar Johannesburg	UPENN	STS 56	35,6	35,65	Positive
Salmonella enterica subsp. *enterica* serovar Kahla	ATCC	17980	27,82	29,47	Positive
Salmonella enterica subsp. *enterica* serovar Kaitaan	Q Labs Isolate	QL024.7	28,22	29,93	Positive
Salmonella enterica subsp. *enterica* serovar Kentucky	ATCC	9263	26,01	29,48	Positive
Salmonella enterica subsp. *enterica* serovar Krefeld	UPENN	STS 58	29,51	30,04	Positive
Salmonella enterica subsp. *enterica* serovar Lille	UPENN	STS 59	29,09	29,76	Positive
Salmonella enterica subsp. *enterica* serovar Livingstone	UPENN	STS 63	29,76	30,17	Positive
Salmonella enterica subsp. *enterica* serovar London	UPENN	STS 64	26,95	30,15	Positive
Salmonella enterica subsp. *enterica* serovar Manhattan	UPENN	STS 65	27,31	30,52	Positive
Salmonella enterica subsp. *enterica* serovar Mbandaka	UPENN	STS 66	30,41	31,52	Positive
Salmonella enterica subsp. *enterica* serovar Menden	ATCC	15992	29,95	30,87	Positive
Salmonella enterica subsp. *enterica* serovar Menhaden	Q Labs Isolate	QL024.20	26,51	29,9	Positive
Salmonella enterica subsp. *enterica* serovar Minnesota	UPENN	STS 70	27,36	29,92	Positive
Salmonella enterica subsp. *enterica* serovar Montevideo	Q Labs Isolate	QL024.19	27,06	30,6	Positive
Salmonella enterica subsp. *enterica* serovar Montevideo	ATCC	8387	31,7	30,57	Positive
Salmonella enterica subsp. *enterica* serovar Muenchen	ATCC	BAA-1594	27,28	30,79	Positive
Salmonella enterica subsp. *enterica* serovar Neasden	Q Labs Isolate	QL024.4	26,21	30,01	Positive
Salmonella enterica subsp. *enterica* serovar Newington	Q Labs Isolate	QL0248	27,97	30,44	Positive
Salmonella enterica subsp. *enterica* serovar Newport	ATCC	6962	28,91	31,89	Positive
Salmonella enterica subsp. *enterica* serovar Ohio	UPENN	STS 81	26,51	29,8	Positive
Salmonella enterica subsp. *enterica* serovar Oranienburg	ATCC	9239	28,23	30,17	Positive

AOAC INCLUSIVITY					
Genus (serovar included)	**Source**	**Source**	***mericon*™ Salmonella spp. Kit**		**Result**
			Green	**Yellow**	
Salmonella enterica subsp. *enterica* serovar Othmarschen	Q Labs Isolate	QL024.13	30,87	30,58	Positive
Salmonella enterica subsp. *enterica* serovar Paratyphi A	ATCC	9150	28,62	29,69	Positive
Salmonella enterica subsp. *enterica* serovar Paratyphi B	ATCC	10719	27,93	30,69	Positive
Salmonella enterica subsp. *enterica* serovar Poona	NCTC	4840	29,53	30,32	Positive
Salmonella enterica subsp. *enterica* serovar Preston	Q Labs Isolate	QL024.16	27,87	29,99	Positive
Salmonella enterica subsp. *enterica* serovar Pullorum	ATCC	13036	29,71	30,39	Positive
Salmonella enterica subsp. *enterica* serovar Rubislaw	UPENN	STS 92	28,88	30,77	Positive
Salmonella enterica subsp. *enterica* serovar Saintpaul	ATCC	9712	26,55	30,49	Positive
Salmonella enterica subsp. *enterica* serovar San-Diego	UPENN	STS 94	28,1	29,9	Positive
Salmonella enterica subsp. *enterica* serovar Schalkwijk	Q Labs Isolate	QL024.10	28,3	30,55	Positive
Salmonella enterica subsp. *enterica* serovar Schwarzengrund	UPENN	STS 95	26,88	30,09	Positive
Salmonella enterica subsp. *enterica* serovar Senftenberg	ATCC	43845	28,86	30,3	Positive
Salmonella enterica subsp. *enterica* serovar Tallahassee	ATCC	12002	36,81	35,97	Positive
Salmonella enterica subsp. *enterica* serovar Tennessee	Q Labs Isolate	QL024.6	29,16	29,77	Positive
Salmonella enterica subsp. *enterica* serovar Thompson	FDA	2051H	27,48	29,85	Positive
Salmonella enterica subsp. *enterica* serovar Typhi	ATCC	6539	25,91	30,68	Positive
Salmonella enterica subsp. *enterica* Typhimurium	ATCC	19585	32,21	34,85	Positive
Salmonella enterica subsp. *enterica* Typhimurium	ATCC	14028	17,41	16,08	Positive
Salmonella enterica subsp. *enterica* Urbana	UPENN	STS 110	27,61	30,49	Positive
Salmonella enterica subsp. *enterica* Utrecht	NCTC	10077	26,04	32,81	Positive
Salmonella enterica subsp. *enterica* Vellore	ATCC	15611	37,59	34,48	Positive
Salmonella enterica subsp. *enterica* Virchow	ATCC	51955	29,26	30,08	Positive
Salmonella enterica subsp. *enterica* Volta	Q Labs Isolate	QL024.9	26,58	29,89	Positive
Salmonella enterica subsp. *enterica* Westhampton	Q Labs Isolate	QL024.14	25,33	23,2	Positive
Salmonella enterica subsp. *enterica* Worthington	UPENN	STS 114	28,86	30,12	Positive

AOAC study : EXCLUSIVITY					
Organism	**Source**	**Origin**	***mericon*™ Salmonella spp. Kit**		**Result**
			Green	**Yellow**	
Aeromonas hydrophila	ATCC 49140	Clinical isolate	-	29,61	Negative
Campylobacter jejuni	ATCC 29428	Human faeces	-	34,37	Negative
Citrobacter braakii	ATCC 43162	Faeces	-	29,82	Negative
Citrobacter farmerii	ATCC 51633	Human faeces	-	29,79	Negative
Citrobacter freundii	ATCC 43364	Soil	-	29,65	Negative
Citrobacter youngae	ATCC 11102	Meat	-	29,91	Negative
Edwardsiella tarda	ATCC 15947	Human faeces	-	30,55	Negative
Enterobacter aerogenes	ATCC 35029	Human	-	30,16	Negative
Enterobacter amnigenus	ATCC 51816	Soil	-	30,54	Negative
Enterobacter cancerogenus	QL11010-1	Human	-	29,66	Negative
Enterobacter cloacae	ATCC 23355	Unknown	-	30,25	Negative
Enterobacter gergoviae	ATCC 33028	Water	-	30,05	Negative
Enterobacter sakazakii	ATCC 51329	Human	-	31,15	Negative
Escherichia coli	ATCC 10536	Unknown	-	29,35	Negative
Escherichia coli O157:H7	ATCC 43895	Meat	-	30,77	Negative
Escherichia fergusonii	ATCC 35469	Faeces	-	30,11	Negative
Escherichia hermanii	ATCC 33650	Clinical Isolate	-	28,99	Negative
Escherichia vulneris	ATCC 29943	Human	-	30,03	Negative
Klebsiella oxytoca	ATCC 43165	Clinical Isolate	-	29,08	Negative
Klebsiella pneumoniae	ATCC 10031	Clinical Isolate	-	31,16	Negative
Morganella morganii	ATCC 25829	Human	-	31,02	Negative
Proteus hauseri	ATCC 13315	Human faeces	-	31,93	Negative
Proteus mirabilis	ATCC 9240	Unknown	-	29,88	Negative
Proteus vulgaris	ATCC 6380	Clinical Isolate	-	31,02	Negative
Pseudomonas aeruginosa	ATCC 27853	Clinical Isolate	-	29,76	Negative
Pseudomonas fluorescens	ATCC 13525	Human	-	29,83	Negative
Serratia marcesens	ATCC 13880	Human	-	27,84	Negative
Shigella dysenteriae	ATCC 12021	Human faeces	-	30,12	Negative
Shigella flexneri	ATCC 9199	Unknown	-	31,1	Negative
Shigella sonnei	ATCC 9290	Human faeces	-	30,39	Negative
Vibrio vulnificus	ATCC QL021111A	Human faeces	-	27,24	Negative

Appendix 8 - Results obtained by the expert laboratory (ISHA) and the collaborative laboratories (Initial validation study, 2013)

Laboratory **A**
Aerobic mesophilic flora: 5,1.10^7 CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	28,68	/	-	-	-	**NA**
2	-	-	-	-	/	-	29,00	/	-	-	-	**NA**
7	-	-	-	-	/	-	29,63	/	-	-	-	**NA**
11	-	-	-	-	/	-	29,03	/	-	-	-	**NA**
14	-	-	-	-	/	-	28,90	/	-	-	-	**NA**
15	-	-	-	-	/	-	29,86	/	-	-	-	**NA**
18	-	-	-	-	/	-	29,08	/	-	-	-	**NA**
20	-	-	-	-	/	-	29,24	/	-	-	-	**NA**
3	+	+	+	+	+	+	29,78	28,25	+	+	+	**PA**
4	+	+	+	+	+	+	29,32	29,34	+	+	+	**PA**
10	+	+	+	+	+	+	29,22	32,24	+	+	+	**PA**
13	+	+	+	+	+	+	28,78	36,58	+	+	+	**PA**
16	+	+	+	+	+	+	28,40	33,04	+	+	+	**PA**
17	+	+	+	+	+	+	29,20	34,84	+	+	+	**PA**
21	+	+	+	+	+	+	29,00	31,82	+	+	+	**PA**
24	+	+	+	+	+	+	29,74	32,30	+	+	+	**PA**
5	+	+	+	+	+	+	28,61	27,91	+	+	+	**PA**
6	+	+	+	+	+	+	29,22	29,55	+	+	+	**PA**
8	+	+	+	+	+	+	28,74	27,11	+	+	+	**PA**
9	+	+	+	+	+	+	29,18	29,22	+	+	+	**PA**
12	+	+	+	+	+	+	29,06	30,34	+	+	+	**PA**
19	+	+	+	+	+	+	27,91	25,55	+	+	+	**PA**
22	+	+	+	+	+	+	28,43	30,72	+	+	+	**PA**
23	+	+	+	+	+	+	28,93	26,53	+	+	+	**PA**

Laboratory B
Aerobic mesophilic flora: $2,3.10^7$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	29,82	/	-	-	-	NA
2	-	-	-	-	/	-	29,77	/	-	-	-	NA
7	-	-	-	-	/	-	30,00	/	-	-	-	NA
11	-	-	-	-	/	-	29,75	/	-	-	-	NA
14	-	-	-	-	/	-	29,06	/	-	-	-	NA
15	-	-	-	-	/	-	29,49	/	-	-	-	NA
18	-	-	-	-	/	-	30,66	/	-	-	-	NA
20	-	-	-	-	/	-	30,86	/	-	-	-	NA
3	+	+	+	+	+	+	29,54	22,84	+	+	+	PA
4	+	+	+	+	+	+	29,36	29,02	+	+	+	PA
10	-	-	-	-	/	-	30,38	/	-	-	-	NA
13	+	+	+	+	+	+	28,74	25,41	+	+	+	PA
16	+	+	+	+	+	+	29,27	25,84	+	+	+	PA
17	+	+	+	+	+	+	29,49	21,51	+	+	+	PA
21	+	+	+	+	+	+	29,99	21,02	+	+	+	PA
24	+	+	+	+	+	+	28,97	25,97	+	+	+	PA
5	+	+	+	+	+	+	29,70	22,97	+	+	+	PA
6	+	+	+	+	+	+	29,09	24,16	+	+	+	PA
8	+	+	+	+	+	+	29,89	20,04	+	+	+	PA
9	+	+	+	+	+	+	29,37	18,33	+	+	+	PA
12	+	+	+	+	+	+	28,77	26,80	+	+	+	PA
19	+	+	+	+	+	+	29,35	22,10	+	+	+	PA
22	+	+	+	+	+	+	29,36	23,16	+	+	+	PA
23	+	+	+	+	+	+	29,27	21,11	+	+	+	PA

Laboratory C
Aerobic mesophilic flora: $1,9.10^7$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	31,61	/	-	-	-	NA
2	-	-	-	-	/	-	32,17*	/	i/-	-	-	NA
7	-	-	-	-	/	-	31,94	/	-	-	-	NA
11	-	-	-	-	/	-	32,40	/	-	-	-	NA
14	-	-	-	-	/	-	32,89*	/	i/-	-	-	NA
15	-	-	-	-	/	-	31,93*	/	i/-	-	-	NA
18	-	-	-	-	/	-	32,02	/	-	-	-	NA
20	-	-	-	-	/	-	31,46*	/	i/-	-	-	NA
3	+	+	+	+	+	+	30,83	34,39	+	+	+	PA
4	+	+	+	+	+	+	30,95	39,86	+	+	+	PA
10	+	+	+	+	+	+	31,03*	33,82*	i/+	+	+	PA
13	+	+	+	+	+	+	31,25*	39,95*	i/+	+	+	PA
16	+	+	+	+	+	+	31,04*	33,96*	i/+	+	+	PA
17	+	+	+	+	+	+	31,79*	34,84*	i/+	+	+	PA
21	+	+	+	+	+	+	30,76*	33,60*	i/+	+	+	PA
24	+	+	+	+	+	+	30,79*	33,35*	i/+	+	+	PA
5	+	+	+	+	+	+	30,17*	25,24*	i/+	+	+	PA
6	+	+	+	+	+	+	31,14*	31,89*	i/+	+	+	PA
8	+	+	+	+	+	+	30,94*	32,02*	i/+	+	+	PA
9	+	+	+	+	+	+	29,62	27,40	+	+	+	PA
12	+	+	+	+	+	+	31,27*	30,33*	i/+	+	+	PA
19	+	+	+	+	+	+	30,77*	30,44*	i/+	+	+	PA
22	+	+	+	+	+	+	30,64*	30,64*	i/+	+	+	PA
23	+	+	+	+	+	+	29,77*	29,97*	i/+	+	+	PA

Laboratory D
Aerobic mesophilic flora: $2,9.10^7$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	29;67	/	-	-	-	NA
2	-	-	-	-	/	-	30,10	/	-	-	-	NA
7	-	-	-	-	/	-	30,10	/	-	-	-	NA
11	-	-	-	-	/	-	30,07	/	-	-	-	NA
14	-	-	-	-	/	-	30,51	/	-	-	-	NA
15	-	-	-	-	/	-	29,86	/	-	-	-	NA
18	-	-	-	-	/	-	30,15	/	-	-	-	NA
20	-	-	-	-	/	-	28,69	/	-	-	-	NA
3	+	+	+	+	+	+	29,30	26,14	+	+	+	PA
4	+	+	+	+	+	+	29,62	28,90	+	+	+	PA
10	+	+	+	+	+	+	29,38	29,72	+	+	+	PA
13	+	+	+	+	+	+	29,75	27,24	+	+	+	PA
16	+	+	+	+	+	+	29,80	29,90	+	+	+	PA
17	+	+	+	+	+	+	29,41	29,06	+	+	+	PA
21	+	+	+	+	+	+	29,43	27,28	+	+	+	PA
24	+	+	+	+	+	+	30,09	26,73	+	+	+	PA
5	+	+	+	+	+	+	28,69	24,06	+	+	+	PA
6	+	+	+	+	+	+	29,03	24,24	+	+	+	PA
8	+	+	+	+	+	+	28,45	23,79	+	+	+	PA
9	+	+	+	+	+	+	28,73	21,20	+	+	+	PA
12	+	+	+	+	+	+	28,47	26,52	+	+	+	PA
19	+	+	+	+	+	+	29,68	29,25	+	+	+	PA
22	+	+	+	+	+	+	28,79	24,37	+	+	+	PA
23	+	+	+	+	+	+	28,54	26,23	+	+	+	PA

Laboratory E
Aerobic mesophilic flora: $6,6.10^7$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	+	-	-	-	-	-	30,48	/	-	-	-	NA
2	+	-	-	-	/	-	29,98	/	-	-	-	NA
7	+	-	-	-	/	-	28,91	39,71	+	-	-	PPNA
11	-	-	-	-	/	-	30,36	/	-	-	-	NA
14	+	+	+	-	-	-	29,88	/	-	-	-	NA
15	-	-	-	-	/	-	29,75	/	-	-	-	NA
18	+	-	-	-	/	-	29,94	25,42	+	-	-	PPNA
20	+	+	-	-	-	-	30,36	/	-	-	-	NA
3	+	-	-	-	-	-	30,33	/	-	-	-	NA
4	+	+	+	+	+	+	29,87	29,70	+	+	+	PA
10	+	+	+	+	+	+	29,57	26,52	+	+	+	PA
13	+	+	+	+	+	+	29,03	26,11	+	+	+	PA
16	+	+	+	+	+	+	30,59	27,24	+	+	+	PA
17	+	+	+	+	+	+	29,75	/	-	+	-	ND
21	+	+	+	+	+	+	29,34	20,82	+	+	+	PA
24	+	+	+	+	+	+	29,23	28,17	+	+	+	PA
5	+	+	+	+	+	+	29,59	26,18	+	+	+	PA
6	+	+	+	+	+	+	29,07	25,19	+	+	+	PA
8	+	+	+	+	+	+	28,82	23,53	+	+	+	PA
9	+	+	+	+	+	+	29,52	25,13	+	+	+	PA
12	+	+	+	+	+	+	29,34	28,13	+	+	+	PA
19	+	+	+	+	+	+	29,68	28,66	+	+	+	PA
22	+	+	+	+	+	+	29,77	24,45	+	+	+	PA
23	+	+	+	+	+	+	30,27	28,76	+	+	+	PA

Laboratory F
Aerobic mesophilic flora: $6,6.10^7$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	31,18	/	-	-	-	**NA**
2	-	-	-	-	/	-	29,54	/	-	-	-	**NA**
7	-	-	-	-	/	-	31,04	/	-	-	-	**NA**
11	-	-	-	-	/	-	27,68	/	-	-	-	**NA**
14	-	-	-	-	/	-	23,89	/	-	-	-	**NA**
15	-	-	-	-	/	-	30,38	/	-	-	-	**NA**
18	-	-	-	-	/	-	23,54	/	-	-	-	**NA**
20	-	-	-	-	/	-	30,22	/	-	-	-	**NA**
3	+	+	+	+	+	+	30,52	34,45	+	+	+	**PA**
4	+	+	+	+	+	+	30,66	31,46	+	+	+	**PA**
10	+	+	+	+	+	+	29,57	29,88	+	+	+	**PA**
13	+	+	+	+	+	+	30,89	35,61	+	+	+	**PA**
16	+	+	+	+	+	+	/	30,53	+	+	+	**PA**
17	+	+	+	+	+	+	27,36	24,85	+	+	+	**PA**
21	+	+	+	+	+	+	29,75	25,88	+	+	+	**PA**
24	+	+	+	+	+	+	28,96	27,54	+	+	+	**PA**
5	+	+	+	+	+	+	31,10	32,19	+	+	+	**PA**
6	+	+	+	+	+	+	24,90	20,09	+	+	+	**PA**
8	+	+	+	+	+	+	31,39	34,16	+	+	+	**PA**
9	+	+	+	+	+	+	26,20	21,34	+	+	+	**PA**
12	+	+	+	+	+	+	28,09	30,55	+	+	+	**PA**
19	+	+	+	+	+	+	30,60	31,31	+	+	+	**PA**
22	+	+	+	+	+	+	30,19	26,71	+	+	+	**PA**
23	+	+	+	+	+	+	29,91	25,73	+	+	+	**PA**

Laboratory G
Aerobic mesophilic flora: $1,2.10^3$ CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	+	-	-	-	29,88	/	-	-	-	**NA**
2	-	-	+	-	-	-	29,85	/	-	-	-	**NA**
7	-	-	+	-	-	-	29,75	/	-	-	-	**NA**
11	+	+	-	-	-	-	30,11	/	-	-	-	**NA**
14	-	-	-	-	/	-	30,41	/	-	-	-	**NA**
15	-	-	+	-	-	-	30,36	/	-	-	-	**NA**
18	-	-	-	-	/	-	31,72	/	-	-	-	**NA**
20	-	-	-	-	/	-	30,55	/	-	-	-	**NA**
3	+	+	+	+	+	+	29,62	29,49	+	+	+	**PA**
4	+	+	+	+	+	+	29,96	29,68	+	+	+	**PA**
10	+	+	+	+	+	+	28,89	24,53	+	+	+	**PA**
13	+	+	+	+	+	+	29,43	27,73	+	+	+	**PA**
16	+	+	+	+	+	+	29,95	26,01	+	+	+	**PA**
17	+	+	+	+	+	+	29,54	24,34	+	+	+	**PA**
21	+	+	+	+	+	+	30,42	30,54	+	+	+	**PA**
24	+	+	+	+	+	+	29,48	25,22	+	+	+	**PA**
5	+	+	+	+	+	+	29,92	27,97	+	+	+	**PA**
6	+	+	+	+	+	+	29,74	30,60	+	+	+	**PA**
8	+	+	+	+	+	+	28,82	24,23	+	+	+	**PA**
9	+	+	+	+	+	+	29,03	25,29	+	+	+	**PA**
12	+	+	+	+	+	+	30,03	20,56	+	+	+	**PA**
19	+	+	+	+	+	+	29,89	21,20	+	+	+	**PA**
22	+	+	+	+	+	+	29,71	24,18	+	+	+	**PA**
23	+	+	+	+	+	+	28,71	25,40	+	+	+	**PA**

Laboratory H
Aerobic mesophilic flora: 1,2.10^8 CFU/g

N° Sample	Reference method: ISO 6579						Mericon Salmonella								Agreement
	RVS		MKTTn		Confir-mation	Final result	PCR 1st extraction			PCR 2ndt extraction			Confir-mation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result	Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	32,95	/	-	/	/	/	-	-	NA
2	-	-	-	-	/	-	33,76	/	-	/	/	/	-	-	NA
7	-	-	-	-	/	-	34,69	/	-	/	/	/	-	-	NA
11	-	-	-	-	/	-	32,92	/	-	/	/	/	-	-	NA
14	-	-	-	-	/	-	33,54	/	-	/	/	/	-	-	NA
15	-	-	-	-	/	-	33,53	/	-	/	/	/	-	-	NA
18	-	-	-	-	/	-	33,30	/	-	/	/	/	-	-	NA
20	-	-	-	-	/	-	33,74	/	-	/	/	/	-	-	NA
3	+	+	+	+	+	+	34,18	34,03	+	/	/	/	/	+	PA
4	-	+	+	+	+	+	33,87	34,15	+	/	/	/	/	+	PA
10	+	+	+	+	+	+	34,33	/	i	31,38	33,23	+	+	No result/+	No result/ PA
13	+	+	+	+	+	+	33,61	35,30	+	/	/	/	+	+	PA
16	+	+	+	+	+	+	33,93	34,73	+	/	/	/	+	+	PA
17	+	+	+	+	+	+	33,85	33,70	+	/	/	/	+	+	PA
21	+	+	+	+	+	+	33,22	33,92	+	/	/	/	+	+	PA
24	+	+	+	+	+	+	34,14	33,84	+	/	/	/	+	+	PA
5	+	+	+	+	+	+	33,46	33,58	+	/	/	/	/	+	PA
6	+	+	+	+	+	+	33,44	29,99	+	/	/	/	/	+	PA
8	+	+	+	+	+	+	33,10	31,17	+	/	/	/	/	+	PA
9	+	+	+	+	+	+	33,31	33,48	+	/	/	/	/	+	PA
12	+	+	+	+	+	+	33,12	39,04	+	/	/	/	/	+	PA
19	+	+	+	+	+	+	33,61	/	i	31,14	37,60	+	+	No result/+	No result/ PA
22	+	+	+	+	+	+	33,20	/	i	32,47	30,55	+	+	No result/+	No result/ PA
23	+	+	+	+	+	+	33,27	33,43	+	/	/	/	+	+	PA

Laboratory I
Aerobic mesophilic flora: 1,0.10^8 CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	29,98	/	/	-	-	NA
2	-	-	-	-	/	-	30,41	/	/	-	-	NA
7	-	-	-	-	/	-	30,06	/	/	-	-	NA
11	-	-	-	-	/	-	30,51	/	/	-	-	NA
14	-	-	-	-	/	-	30,06	/	/	-	-	NA
15	-	+	+	-	-	-	29,87	34,18	+	-	-	PPNA
18	+	-	+	+	-	-	30,06	36,08	+	-	-	PPNA
20	-	-	+	+	-	-	29,76	/	/	-	-	NA
3	+	+	+	+	+	+	30,56	31,05	+	+	+	PA
4	+	+	+	+	+	+	29,90	31,12	+	+	+	PA
10	+	+	+	+	+	+	30,01	30,86	+	+	+	PA
13	+	+	+	+	+	+	30,72	32,44	+	+	+	PA
16	+	+	+	+	+	+	29,55	25,20	+	+	+	PA
17	+	+	+	+	+	+	29,80	26,00	+	+	+	PA
21	+	+	+	+	+	+	29,39	23,58	+	+	+	PA
24	+	+	+	+	+	+	29,65	29,23	+	+	+	PA
5	+	+	+	+	+	+	29,07	25,44	+	+	+	PA
6	+	+	+	+	+	+	29,82	27,47	+	+	+	PA
8	+	+	+	+	+	+	29,92	22,61	+	+	+	PA
9	+	+	+	+	+	+	29,56	22,44	+	+	+	PA
12	+	+	+	+	+	+	29,79	27,55	+	+	+	PA
19	+	+	+	+	+	+	29,57	26,24	+	+	+	PA
22	+	+	+	+	+	+	29,07	26,81	+	+	+	PA
23	+	+	+	+	+	+	29,53	28,14	+	+	+	PA

Laboratory J
Aerobic mesophilic flora: 1,4.10^7 CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	36,28	/	i	-	No result	NA
2	-	-	-	-	/	-	36,41	/	i	-	No result	NA
7	-	-	-	-	/	-	/	/	i	-	No result	NA
11	-	-	-	-	/	-	33,74	/	i	-	No result	NA
14	-	-	-	-	/	-	34,27	/	i	-	No result	NA
15	-	-	-	-	/	-	39,11	/	i	-	No result	NA
18	-	-	-	-	/	-	31,50	/	i	-	No result	NA
20	-	-	-	-	/	-	33,41	/	i	-	No result	NA
3	+	+	+	+	+	+	31,76	33,28	+	+	+	PA
4	+	+	+	+	+	+	35,00	/	i	+	No result	No result
10	+	+	+	+	+	+	32,78	/	-	+	-	ND
13	+	+	+	+	+	+	32,28	/	-	+	-	ND
16	+	+	+	+	+	+	31,15	38,14	+	+	+	PA
17	+	+	+	+	+	+	33,42	/	i	+	No result	No result
21	+	+	+	+	+	+	/	31,82	+	+	+	PA
24	+	+	+	+	+	+	30,06	32,30	+	+	+	PA
5	+	+	+	+	+	+	34,89	/	i	+	No result	No result
6	+	+	+	+	+	+	31,66	36,94	+	+	+	PA
8	+	+	+	+	+	+	31,53	34,87	+	+	+	PA
9	+	+	+	+	+	+	31,31	30,43	+	+	+	PA
12	+	+	+	+	+	+	29,60	27,39	+	+	+	PA
19	+	+	+	+	+	+	31,07	30,88	+	+	+	PA
22	+	+	+	+	+	+	31,19	30,72	+	+	+	PA
23	+	+	+	+	+	+	31,98	26,53	+	+	+	PA

Laboratory K
Aerobic mesophilic flora: 1,8.10^7 CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	31,36	/	/	-	-	NA
2	-	-	-	-	/	-	31,13	/	/	-	-	NA
7	-	-	-	-	/	-	31,04	/	/	-	-	NA
11	-	-	-	-	/	-	34,31/31,67*	/	i/-	-	-	NA
14	-	-	-	-	/	-	34,26/31,00*	/	i/-	-	-	NA
15	-	-	-	-	/	-	31,83	36,62	+	-	-	PPNA
18	-	-	-	-	/	-	34,48/31,76*	/	i/-	-	-	NA
20	-	-	-	-	/	-	33,79/31,59*	/	i/-	-	-	NA
3	+	+	+	+	+	+	29,74	28,87	+	+	+	PA
4	+	+	+	+	+	+	29,73	30,87	+	+	+	PA
10	+	+	+	+	+	+	31,87	35,68	+	+	+	PA
13	+	+	+	+	+	+	31,46	36,45	+	+	+	PA
16	+	+	+	+	+	+	31,46	33,30	+	+	+	PA
17	+	+	+	+	+	+	31,41	31,66	+	+	+	PA
21	+	+	+	+	+	+	33,43/31,03*	35,88	i/+	+	+	PA
24	+	+	+	+	+	+	31,32	35,47	+	+	+	PA
5	+	+	+	+	+	+	29,67	23,04	+	+	+	PA
6	+	+	+	+	+	+	30,09	24,12	+	+	+	PA
8	+	+	+	+	+	+	31,08	26,32	+	+	+	PA
9	+	+	+	+	+	+	30,48	24,07	+	+	+	PA
12	+	+	+	+	+	+	29,45	22,81	+	+	+	PA
19	+	+	+	+	+	+	30,20	28,70	+	+	+	PA
22	+	+	+	+	+	+	30,40	31,90	+	+	+	PA
23	+	+	+	+	+	+	31,27	33,27	+	+	+	PA

Laboratory L
Aerobic mesophilic flora: 2,6.10^{7} CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	29,96	/	-	-	-	NA
2	-	-	-	-	/	-	29,89	/	-	-	-	NA
7	-	-	-	-	/	-	30,33	/	-	-	-	NA
11	-	-	-	-	/	-	29,70	/	-	-	-	NA
14	-	-	-	-	/	-	29,84	/	-	-	-	NA
15	-	-	-	-	/	-	29,79	/	-	-	-	NA
18	-	-	-	-	/	-	29,72	/	-	-	-	NA
20	-	-	-	-	/	-	29,91	/	-	-	-	NA
3	+	+	+	+	+	+	29,32	23,08	+	+	+	PA
4	+	+	+	+	+	+	30,06	22,68	+	+	+	PA
10	+	+	+	+	+	+	28,98	22,41	+	+	+	PA
13	+	+	+	+	+	+	30,06	25,45	+	+	+	PA
16	+	+	+	+	+	+	30,27	31,44	+	+	+	PA
17	+	+	+	+	+	+	29,66	23,31	+	+	+	PA
21	+	+	+	+	+	+	29,00	23,69	+	+	+	PA
24	+	+	+	+	+	+	29,15	22,83	+	+	+	PA
5	+	+	+	+	+	+	29,49	16,51	+	+	+	PA
6	+	+	+	+	+	+	29,83	26,50	+	+	+	PA
8	+	+	+	+	+	+	29,88	23,85	+	+	+	PA
9	+	+	+	+	+	+	29,70	15,47	+	+	+	PA
12	+	+	+	+	+	+	29,70	20,45	+	+	+	PA
19	+	+	+	+	+	+	29,30	25,36	+	+	+	PA
22	+	+	+	+	+	+	28,94	24,34	+	+	+	PA
23	+	+	+	+	+	+	29,25	26,15	+	+	+	PA

Laboratory M
Aerobic mesophilic flora: 5,0.10^{4} CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	29,88	/	-	-	-	NA
2	-	-	-	-	/	-	29,27	/	-	-	-	NA
7	-	-	-	-	/	-	29,97	/	-	-	-	NA
11	-	-	-	-	/	-	29,70	/	-	-	-	NA
14	-	-	-	-	/	-	29,55	/	-	-	-	NA
15	-	-	-	-	/	-	29,63	/	-	-	-	NA
18	-	-	-	-	/	-	29,66	/	-	-	-	NA
20	-	-	-	-	/	-	29,60	/	-	-	-	NA
3	+	+	+	+	+	+	29,87	/	+	+	+	PA
4	+	+	+	+	+	+	30,01	33,20	+	+	+	PA
10	+	+	+	+	+	+	29,69	29,41	+	+	+	PA
13	+	+	+	+	+	+	28,86	28,10	+	+	+	PA
16	+	+	+	+	+	+	29,16	30,07	+	+	+	PA
17	+	+	+	+	+	+	30,01	35,47	+	+	+	PA
21	+	+	+	+	+	+	29,62	33,06	+	+	+	PA
24	+	+	+	+	+	+	28,81	26,97	+	+	+	PA
5	+	+	+	+	+	+	29,47	31,16	+	+	+	PA
6	+	+	+	+	+	+	29,24	26,05	+	+	+	PA
8	+	+	+	+	+	+	29,60	32,86	+	+	+	PA
9	+	+	+	+	+	+	30,40	36,21	+	+	+	PA
12	+	+	+	+	+	+	28,17	23,71	+	+	+	PA
19	+	+	+	+	+	+	28,37	22,33	+	+	+	PA
22	+	+	+	+	+	+	29,86	30,88	+	+	+	PA
23	+	+	+	+	+	+	29,57	28,54	+	+	+	PA

Laboratory Expert Lab (ISHA)
Aerobic mesophilic flora: 8,5.10^{7} CFU/g

N°Sample	Reference method: ISO 6579						Mericon Salmonella					Agreement
	RVS		MKTTn		Confirmation	Final result	PCR			Confirmation	Final result	
	XLD	Hektoen	XLD	Hektoen			Ct CI	Ct Target	Result			
1	-	-	-	-	/	-	30,23*	/	i/-	-	-	**NA**
2	-	-	-	-	/	-	30,46*	/	i/-	-	-	**NA**
7	-	-	-	-	/	-	31,08	/	-	-	-	**NA**
11	-	-	-	-	/	-	30,56*	/	i/-	-	-	**NA**
14	-	-	-	-	/	-	31,21	/	-	-	-	**NA**
15	-	-	-	-	/	-	32,74	/	-	-	-	**NA**
18	-	-	-	-	/	-	32,71	/	-	-	-	**NA**
20	-	-	-	-	/	-	32,82	/	-	-	-	**NA**
3	+	+	+	+	+	+	32,49	32,45	+	+	+	**PA**
4	+	+	+	+	+	+	31,50	30,73	+	+	+	**PA**
10	+	+	+	+	+	+	32,72	31,46	+	+	+	**PA**
13	+	+	+	+	+	+	30,13	31,09	+	+	+	**PA**
16	+	+	+	+	+	+	30,97	31,23	+	+	+	**PA**
17	+	+	+	+	+	+	30,66	31,81	+	+	+	**PA**
21	+	+	+	+	+	+	30,98	29,59	+	+	+	**PA**
24	+	+	+	+	+	+	30,97	29,11	+	+	+	**PA**
5	+	+	+	+	+	+	32,41	28,66	+	+	+	**PA**
6	+	+	+	+	+	+	32,43	29,02	+	+	+	**PA**
8	+	+	+	+	+	+	32,74	29,22	+	+	+	**PA**
9	+	+	+	+	+	+	29,89	28,56	+	+	+	**PA**
12	+	+	+	+	+	+	33,53*	29,65*	i/+	+	+	**PA**
19	+	+	+	+	+	+	31,67	29,54	+	+	+	**PA**
22	+	+	+	+	+	+	34,23	29,87	+	+	+	**PA**
23	+	+	+	+	+	+	31,31	28,63	+	+	+	**PA**