

## Verification of an alternative analysis method Application to the food industry

Quantitative and chromogenic method

**CHROMagar™ Staph aureus**  
**for the enumeration at 37°C of *Staphylococcus aureus* and other**  
**coagulase positive staphylococci**  
**in human food and animal feed products**

Laboratory: Laboratoire MICROSEPT  
ZA de la Sablonnière  
15 rue Denis Papin  
49220 LE LION D'ANGERS  
FRANCE

For: CHROMagar  
4, place du 18 juin 1940  
75006 PARIS  
FRANCE

This report contains 37 pages, including 13 pages of appendices.  
The reproduction of this document is only authorized in its entirety.  
The accreditation of the COFRAC (Section Laboratory) gives evidence of the expertise of the laboratory  
for the only tests covered by the accreditation that are specified by the symbol (■).

## Preamble

- Protocols of validation :

- **EN ISO 16140-1 and NF EN ISO 16140-2 (September 2016): Microbiology of the food chain — Method validation**

Part 1: Vocabulary.

Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method.

- Reference method:

- **NF ISO 6888-2 (September 2021):** Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) — Part 2: Method using rabbit plasma fibrinogen agar media.

- Application scope:

- **All human food products** by a validation testing of different categories of foods, including:
  - meat products,
  - dairy products,
  - seafood products,
  - vegetal products,
  - composite foods.
- **Animal feed products.**

## Definitions

- **Method comparison study**

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

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

- **Relative trueness study**

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

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

- **Accuracy profile study**

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

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

- **Inclusivity and exclusivity study**

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

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

## Table of contents

1.	Introduction.....	5
2.	Protocols of the methods .....	6
2.1.	Alternative method .....	6
2.1.1.	Principle of the method.....	6
2.1.2.	Protocol of the method .....	6
2.1.3.	Restrictions.....	6
2.2.	Reference method.....	6
3.	Relative trueness study.....	7
3.1.	Number and categories of food and feed samples.....	7
3.1.1.	Artificial contaminations .....	7
3.1.2.	Protocols used during the study.....	7
3.1.3.	Results .....	7
3.1.4.	Calculation and interpretation of relative trueness study .....	12
3.1.5.	Samples with abundant background microflora.....	16
3.1.6.	Conclusion .....	16
3.2.	Accuracy profile study .....	16
3.2.1.	Protocols .....	16
3.2.2.	Results .....	17
3.2.3.	Conclusion .....	19
3.3.	Inclusivity / exclusivity studies.....	20
3.3.1.	Protocols .....	20
3.3.2.	Results .....	20
3.3.3.	Interpretation.....	22
3.3.4.	Conclusion .....	23
3.4.	General conclusion for the methods comparison study .....	24

## Appendices

Appendix A: Flow diagram of the CHROMagar™ Staph aureus method

Appendix B: Flow diagram of the ISO 6888-2 method

Appendix C: Artificial contaminations

Appendix D: Relative trueness study - Raw results

Appendix E: Relative trueness study - Statistical calculations

Appendix F: Accuracy profile study - Raw results

## 1. Introduction

CHROMagar™ Staph aureus is a selective chromogenic culture media intended for use in the qualitative direct detection, differentiation, and presumptive identification of *Staphylococcus aureus* to aid in the diagnosis of *Staphylococcus aureus* colonization. The medium can be used as an early warning indicator for diagnostic tests of infections to signal the possible presence of *Staphylococcus aureus*.

CHROMagar™ Staph aureus can also be used in the detection and enumeration of *Staphylococcus aureus* and other coagulase positive staphylococci in the analyses of food products for human consumption, animal feed and in environmental samples.

The aim of this study is to verify the performance of the CHROMagar™ Staph aureus agar media versus the Baird-Parker + RPF agar media with pure strains and food products associated with coagulase positive staphylococci. These food matrices represent a broad range of foods grouped into different categories.

The results set out in this report were produced during tests carried out by Laboratory MICROSEPT in 2022.

## 2. Protocols of the methods

### 2.1. Alternative method

#### 2.1.1. Principle of the method

The alternative method tested is the CHROMagar™ Staph aureus method for the isolation, enumeration and direct differentiation of *Staphylococcus aureus* in food and feed samples without confirmation.

#### 2.1.2. Protocol of the method

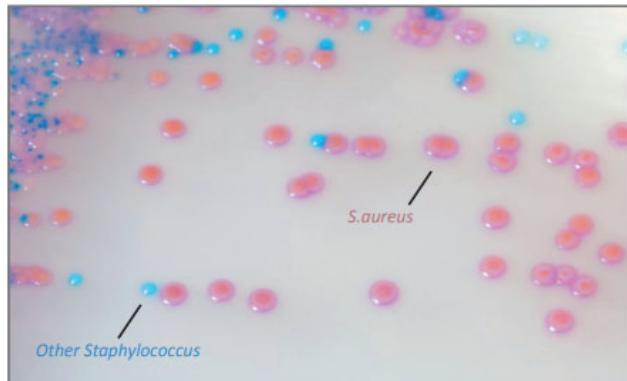
The diagram summarizing the method is shown in Appendix A.

10 g of sample in 90 mL of Buffered Peptone Water according to ISO 6887 standards.

Two modalities of inoculation are available:

- Surface spreading protocol: inoculate 1 mL across three CHROMagar™ Staph aureus plates and incubate for 18–24 hours at 37±2°C in aerobic conditions.
- Poured plate protocol: inoculate 1 mL in a Petri dish and add 20±2 mL of CHROMagar™ Staph aureus agar media and incubate 18–24 hours at 37±2°C in aerobic conditions.

After 18 to 24 hours at 35–37°C, the characteristic colonies of *S. aureus* and other coagulase-positive staphylococci appear pink to purple in color.



#### 2.1.3. Restrictions

There are no restrictions on the use of the CHROMagar™ Staph aureus method.

### 2.2. Reference method

The reference method (RM) to which the alternative method (AM) will be compared is that described in ISO 6888-2 (09/2021): Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) — Part 2: Method using rabbit plasma fibrinogen agar media.

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

### 3. Relative trueness study

#### 3.1. Number and categories of food and feed samples

In this study, 81 samples were analyzed giving 50 exploitable results for surface spreading inoculation and 51 exploitable results for poured plate inoculation.

The distribution of the samples per category and inoculation technique is given in table 2.

*Table 2: number and nature of the samples analyzed for the relative trueness study*

Category	Samples analyzed	Interpretable results	
		Surface	Poured plate
<b>1 Meat products</b>	18	9	9
<b>2 Dairy products</b>	15	10	10
<b>3 Seafood products</b>	11	7	8
<b>4 Vegetal products</b>	10	10	9
<b>5 Composite foods</b>	24	11	12
<b>6 Animal feed</b>	3	3	3
<b>Total</b>	<b>81</b>	<b>50</b>	<b>51</b>

##### 3.1.1. Artificial contaminations

Naturally contaminated samples were analyzed preferably.

However, artificially contaminated samples were still analyzed, using seeding or spiking protocols as described in the standard NF EN ISO 16140-2:2016.

Among the interpretable results for surface spreading protocol, fifteen correspond to naturally contaminated samples and thirty-five to artificially contaminated samples. Among the interpretable results for poured plate protocol, sixteen correspond to naturally contaminated samples and thirty-five to artificially contaminated samples.

The artificial contaminations performed are presented in the Appendix C.

##### 3.1.2. Protocols used during the study

The samples were analyzed by the reference method ISO 6888-2 using Baird-Parker + RPF and by the CHROMagar method using CHROMagar™ Staph aureus media.

For the CHROMagar™ Staph aureus media, the minimum incubation time of the Petri dishes was applied, namely 18 hours. After incubation of the CHROMagar™ Staph aureus and the Baird- Parker plates, a count was made, and the characteristic colonies observed on the CHROMagar™ Staph aureus media were confirmed by the coagulase test.

##### 3.1.3. Results

Raw results are shown in Appendix D.

Three kinds of results are not considered as part of the statistical calculations:

- Those expressed with less than 4 colonies per plate for at least one method or inoculation modality,
- those lower or higher than the quantification limits,
- Undetermined results.

All results are presented in scatter plots per category in figure 1 for surface spreading inoculation and in figure 2 for poured plate inoculation. Figures 3 and 4 present the results for all categories.

Figure 1: Two-dimensional plots per category

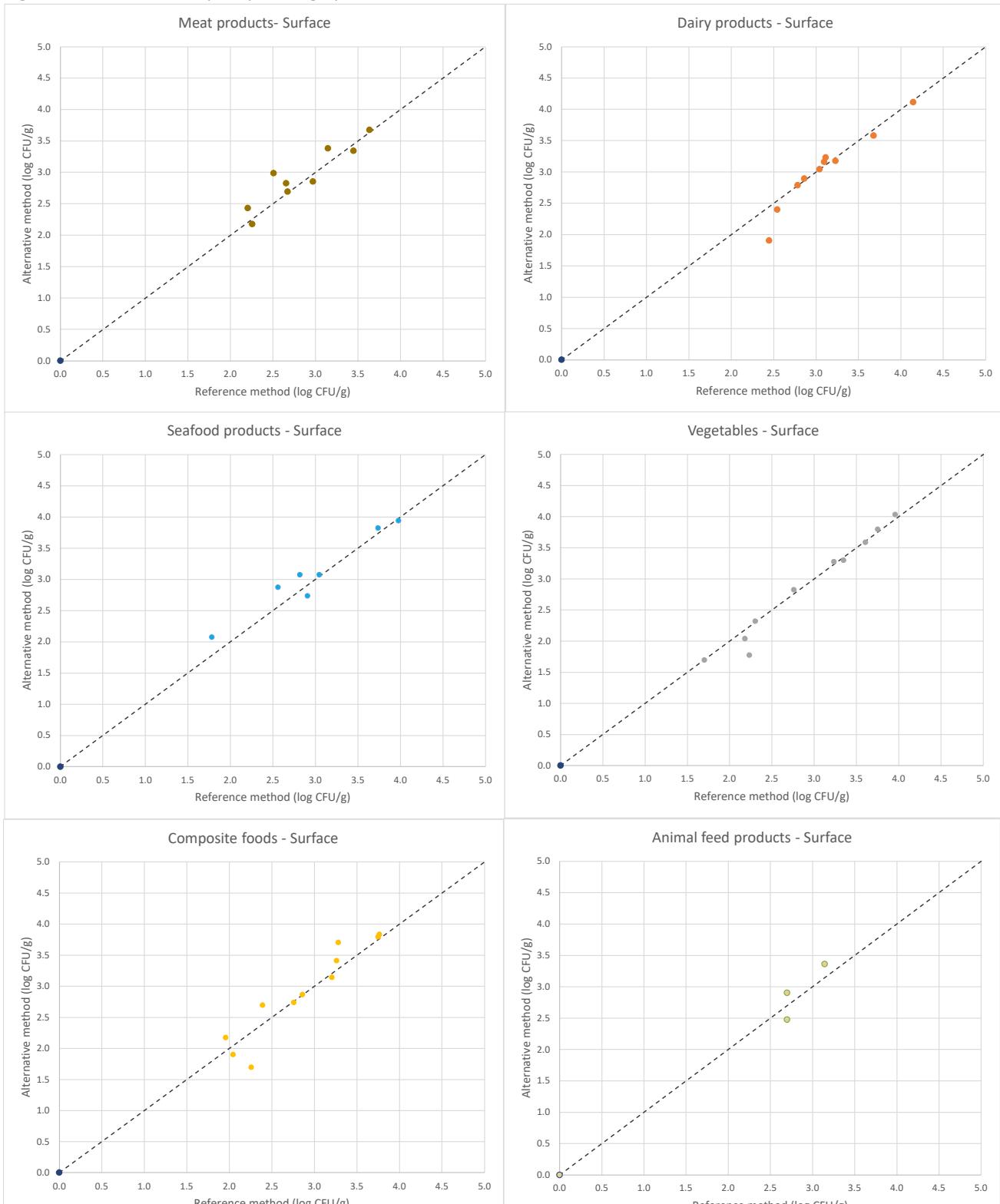


Figure 2: Two-dimensional plots per category

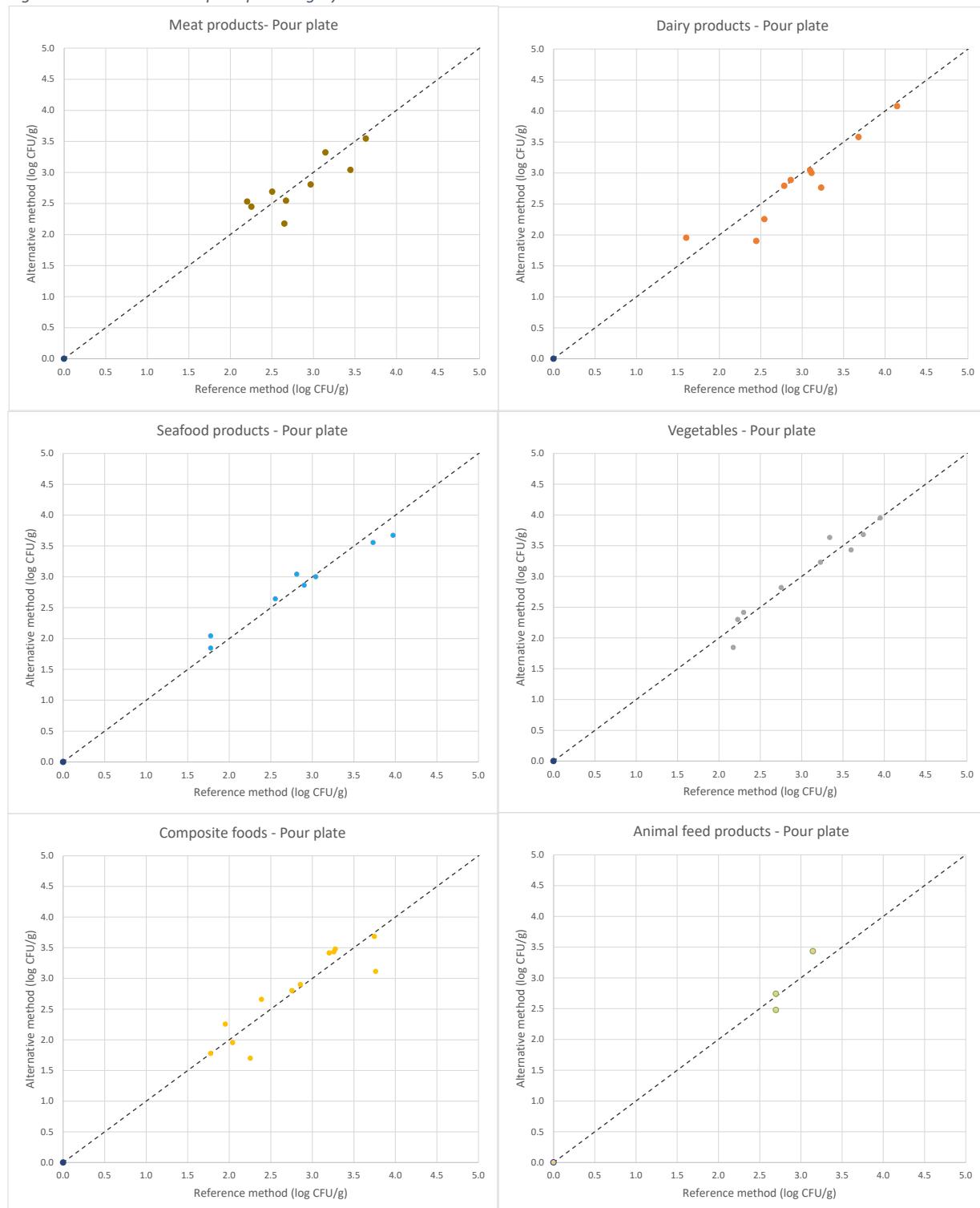


Figure 3: Two-dimensional plots for all categories - Surface spreading inoculation

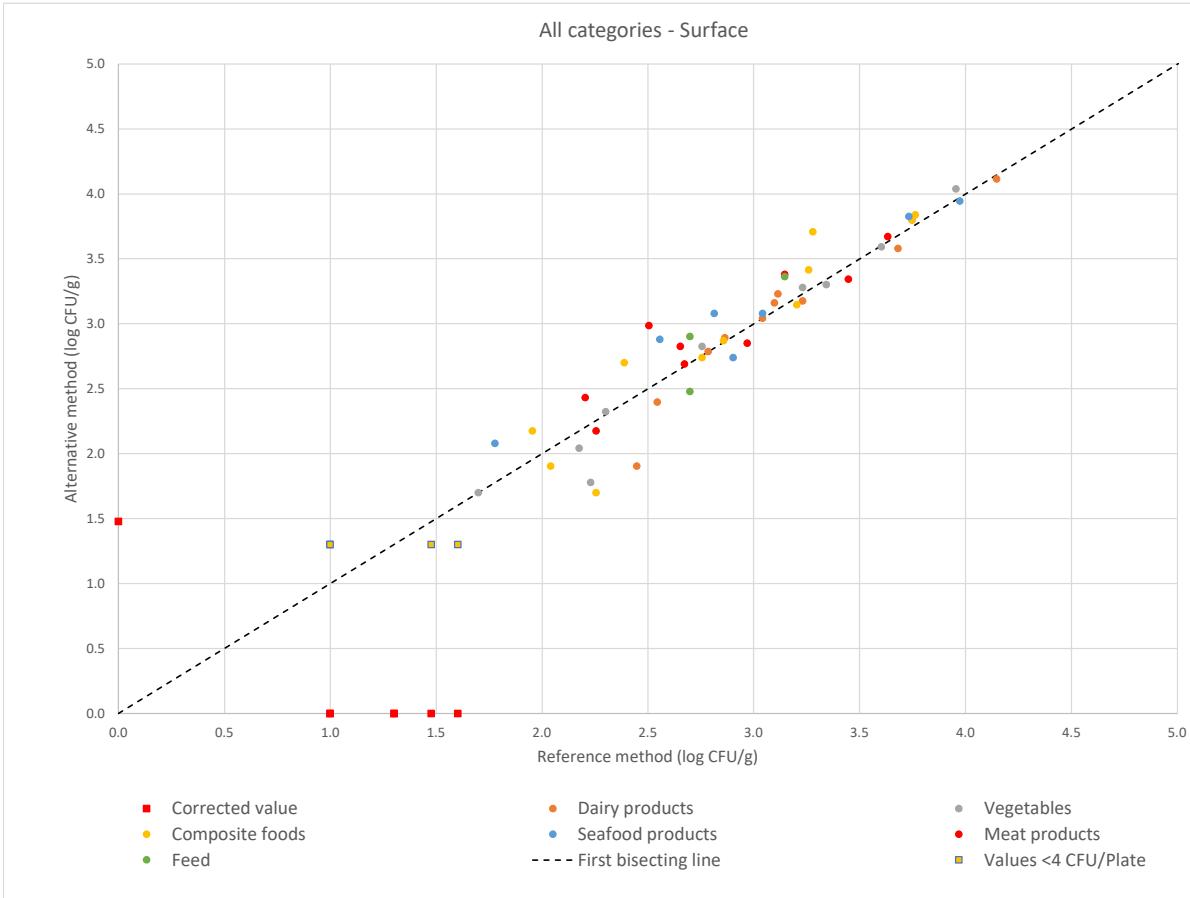
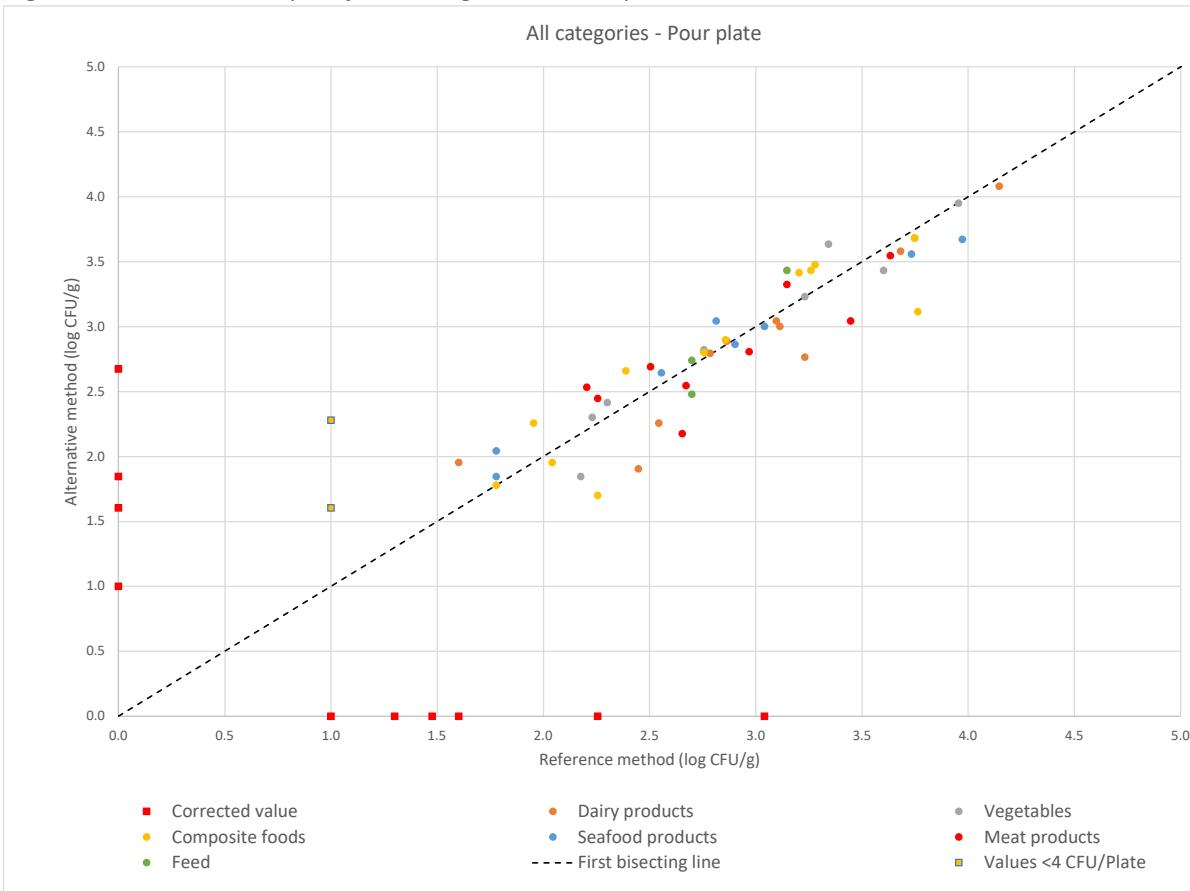


Figure 4: Two-dimensional plots for all categories - Poured plate inoculation



### 3.1.4. Calculation and interpretation of relative trueness study

The results obtained are analyzed using the Bland-Altman method.

Statistical calculations are presented in Appendix E, as well as the results excluded from the statistical analysis per category, type and modality of inoculation.

Table 3 presents the summary of the average differences and standard deviation differences per category and for all categories with surface spreading inoculation.

*Table 3: values for the Bland-Altman difference plot with surface spreading inoculation*

Category	N	Average difference	Standard deviation differences	Bias	Lower Confidence Limit	Upper Confidence Limit
Meat products	9	0.10	0.20	0.10	-0.39	0.58
Dairy products	10	-0.07	0.18	-0.07	-0.50	0.37
Seafood products	7	0.12	0.19	0.12	-0.37	0.60
Vegetal products	10	-0.04	0.16	-0.04	-0.41	0.34
Composite foods	11	0.04	0.26	0.04	-0.56	0.65
Feed products	3	0.07	0.25	0.07	-1.17	1.30
<b>All categories</b>	<b>50</b>	<b>0.03</b>	<b>0.21</b>	<b>0.03</b>	<b>-0.39</b>	<b>0.45</b>

Overall, the average difference is equal to 0.03, showing a weak positive bias between the CHROMagar™ Staph aureus method and the reference method with surface spreading inoculation.

Table 4 presents the summary of the average differences and standard deviation differences per category and for all categories with poured plate inoculation.

*Table 4: values for the Bland-Altman difference plot with poured plate inoculation*

Category	n	Average difference	Standard deviation differences	Bias	Lower Confidence Limit	Upper Confidence Limit
Meat products (MP)	9	-0.04	0.28	-0.04	-0.73	0.64
Dairy products (DP)	10	-0.13	0.26	-0.13	-0.74	0.48
Seafood products (SFP)	7	0.01	0.19	0.01	-0.47	0.49
Vegetal products (VP)	10	0.00	0.18	0.00	-0.43	0.43
Composite foods (CF)	11	-0.04	0.30	-0.04	-0.71	0.69
Feed products (FP)	3	0.03	0.25	0.03	-1.23	1.29
<b>All categories</b>	<b>51</b>	<b>-0.03</b>	<b>0.25</b>	<b>-0.03</b>	<b>-0.53</b>	<b>0.47</b>

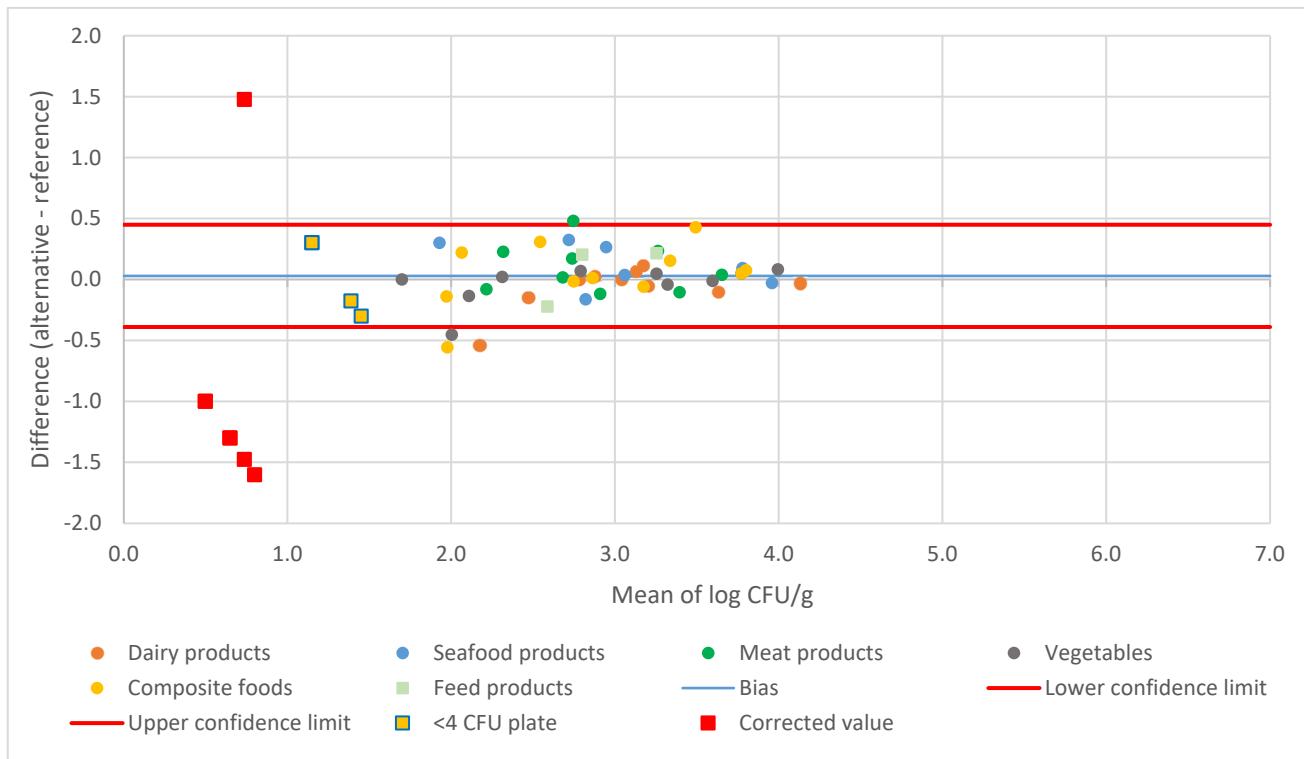
Overall, the average difference is equal to -0.03, showing a weak negative bias between the CHROMagar™ Staph aureus method and the reference method with poured plate inoculation.

The Bland-Altman difference plots are presented for all categories in figure 5 for surface spreading inoculation and in figure 6 for poured plate inoculation.

As on scatter plots:

- Each category is differentiated by a specific colour,
- Results expressed with less than 4 colonies per plate for at least one method are indicated by a yellow square,
- Results lower or higher than the quantification limits for one method are indicated by a red square. The value of these results is corrected according to the EN ISO 16140-2:2016 requirements.

Figure 5: Bland-Altman difference plot for all categories – surface spreading



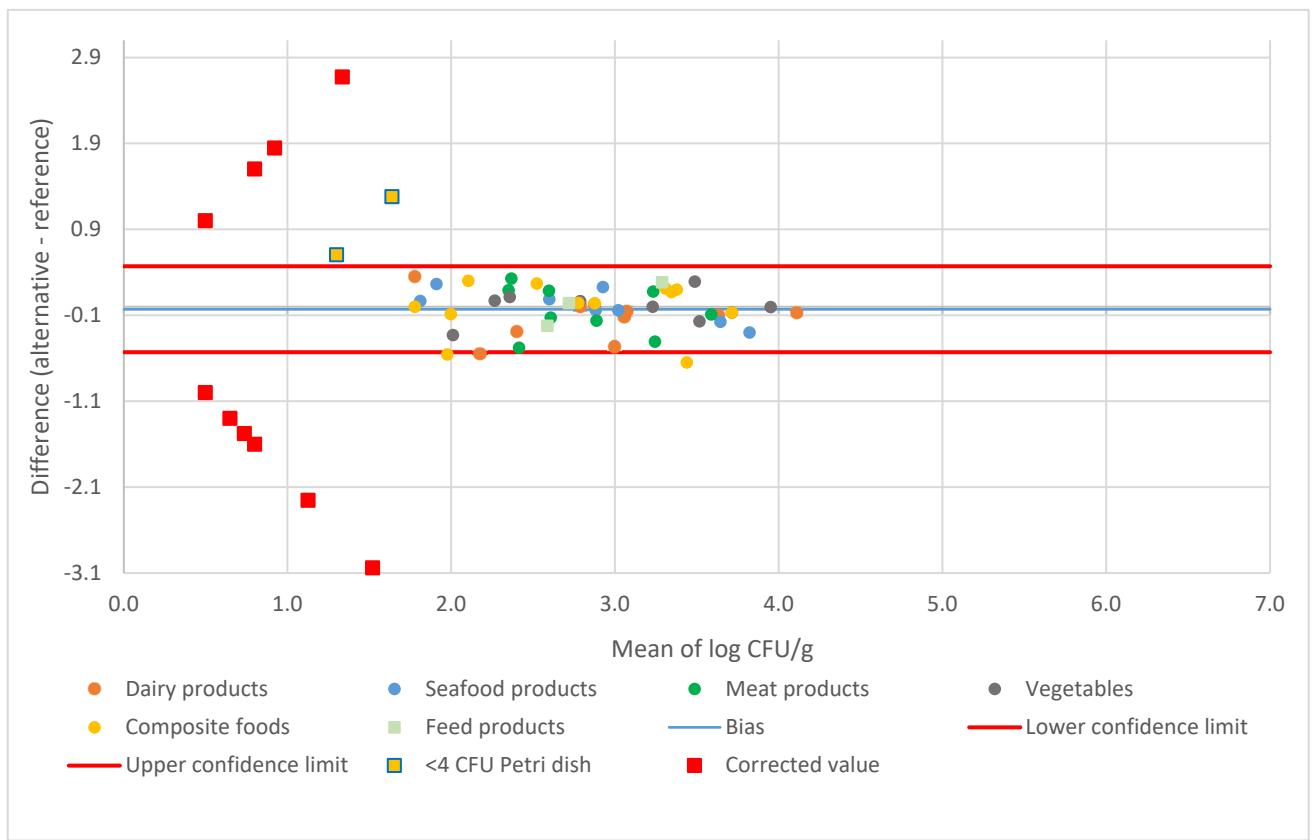
Samples for which the average difference is lower or higher than the confidence limits are listed in table 5 for surface spreading inoculation.

Table 5: values outside the confidence limits on the Bland-Altman difference plot (green cases: values <4 CFU/plate, yellow cases: values lower and higher than the quantification limits, blue: values higher than the confidence limits, red: values lower than the quantification limits) – surface spreading

Cat.	#	Matrix	RM	AM	RM	AM	Mean	Difference
			CFU/g	CFU/g	log CFU/g	log CFU/g		
MP	2263500	Chopped steak	320	970	2.51	2.99	2.75	<b>0.48</b>
	2263499	Plain sausage	<10	30	0.00	1.48	0.74	<b>1.48</b>
	2263497	Breaded cutlet	10	<10	1.00	0.00	0.50	<b>-1.00</b>
DP	2281366	Cheese Trebois	280	80	2.45	1.90	2.18	<b>-0.54</b>
	2263493	Raw milk goat cheese "Chabis" fat 20%	20	<10	1.30	0.00	0.65	<b>-1.30</b>
	2263491	Pasteurized milk cheese	10	<10	1.00	0.00	0.50	<b>-1.00</b>
VP	2263513	Celery remoulade	170	60	2.23	1.78	2.00	<b>-0.45</b>
CF	2263482	Viennese tuna sandwich	180	50	2.26	1.70	1.98	<b>-0.56</b>
	2263487	Tuna salad, tomatoes, corn, red beans	40	<10	1.60	0.00	0.80	<b>-1.60</b>
	2263486	Vegetarian salad	20	<10	1.30	0.00	0.65	<b>-1.30</b>
	2263485	Endive walnut pear salad	30	<10	1.48	0.00	0.74	<b>-1.48</b>
	2263480	Hachis Parmentier	70	20	1.85	1.30	1.57	<b>-0.54</b>
	2263665	Salad salmon tomatoes pasta potatoes	<10	70	0.00	1.85	0.92	<b>1.85</b>

Thirteen samples are outside the confidence limits: 9 concern corrected values or samples with less than 4 CFU/plate. Among the 4 interpretable samples, 1 is higher than the upper confidence limit and 3 are lower than the lower confidence limit.

Figure 6: Bland-Altman difference plot for all categories – Poured plate



Samples for which the average difference is lower or higher than the confidence limits are listed in table 6 for Poured plate inoculation.

Table 6: values outside the confidence limits on the Bland-Altman difference plot (green cases: values <4 CFU/plate, yellow cases: values lower and higher than the quantification limits, blue: values higher than the confidence limits, red: values lower than the quantification limits) – Poured plate

Cat.	#	Matrix	RM	AM	RM	AM	Mea n	Difference
			CFU/g	CFU/g	log CFU/g	log CFU/g		
MP	2263499	Plain sausage	<10	470	0.00	2.67	1.34	2.67
	2263498	Raw chicken	<10	40	0.00	1.60	0.80	1.60
	2263497	Breaded cutlet	10	40	1.00	1.60	1.30	0.60
	3363496	Brest of chicken	10	190	1.00	2.28	1.64	1.28
DP	2281366	Cheese Trebois	280	80	2.45	1.90	2.18	-0.54
	2263494	Raw milk cow's cheese "Mont d'or"	1 100	<10	3.04	0.00	1.52	-3.04
	2263491	Pasteurized milk cheese	10	<10	1.00	0.00	0.50	-1.00
CF	2263482	Viennese tuna sandwich	180	50	2.26	1.70	1.98	-0.56
	2263507	Caramel pear cake	5 800	1 300	3.76	3.11	3.44	-0.65
	2263487	Tuna salad, tomatoes, corn, red beans	40	<10	1.60	0.00	0.80	-1.60
	2263486	Vegetarian salad	20	<10	1.30	0.00	0.65	-1.30
	2263485	Endive walnut pear salad	30	<10	1.48	0.00	0.74	-1.48
	2263482	Viennese tuna sandwich	180	<10	2.26	0.00	1.13	-2.26
	2263481	Tartiflette croissants	<10	10	0.00	1.00	0.50	1.00
	2263480	Hachis Parmentier	70	10	1.85	1.00	1.42	-0.85
	2263665	Salad salmon tomatoes pasta potatoes	<10	70	0.00	1.85	0.92	1.85

Sixteen samples are outside the confidence limits: 13 concern corrected values or samples with less than 4 CFU/Petri dish. The 3 interpretable samples are lower than the lower confidence limit.

### 3.1.5. Samples with abundant background microflora

Five samples considering contaminated with background microflora, were analyzed with CHROMagar™ Staph aureus media supplemented with 2.5 mg/L of potassium tellurite with poured plate inoculation.

The results are shown in table 7.

*Table 7: samples analyzed with CHROMagar™ Staph aureus + 2.5 mg/L of tellurite*

Sample code	Sample name	Contamination	Dil.	Reference method ISO 6888-2			Surface spreading - Incubation 18 h at 37°C			Poured plate - Incubation 18 h at 37°C		
				CFU after 24h	CFU after 48h	Result	CFU	Conf.	Result	CFU	Conf.	Result
2247843	Pastry *	nc	-1	0	0	<10	0	/	<10	0	/	<10*
			-2	0	0		0	/		0	/	
2263509	Pastry *	ac	-1	23	27	245	47	100%	500	46	100%	455*
			-2	0	0		8	100%		4	100%	
2281362	Pearl pasta surimi and prawns *	nc	-1	0	0	<10	0	/	<10	0	/	<10*
			-2	0	0		0	/		0	/	
2263665	Salad salmon tomatoes pasta potatoes *	nc	-1	0	0	<10	7	100%	70	7	100%	70*
			-2	0	0		0	/		0	/	
2281309	Pastry *	nc	-1	7	11	110	8	100%	80	9	100%	90*
			-2	0	0		1	100%		0	/	

For four samples (2247843, 2263509, 2281362 and 2281309), the addition of potassium tellurite in the CHROMagar™ Staph aureus media gave similar results between Baird-Parker + RPF and CHROMagar™ Staph aureus.

For one sample (2263665), the recovery of *Staphylococcus aureus* is better with CHROMagar™ Staph aureus supplemented than Baird-Parker + RPF. For this sample, the background microflora was very abundant on the Baird-Parker + RPF medium, which did not allow enumeration of *Staphylococcus aureus*.

### 3.1.6. Conclusion

The relative trueness study of the CHROMagar™ Staph aureus method is satisfactory.

## 3.2. Accuracy profile study

### 3.2.1. Protocols

Three matrix-strain couples were tested by both methods.

For this study, only the poured plate protocol was tested but two modalities of preparation were tested.

The first modality is the use of the CHROMagar™ Staph aureus media extemporaneously after its preparation. The second modality is the use of the CHROMagar™ Staph aureus media after its melting in a water bath at 100°C for 40 minutes previously pre-poured in bottle and kept at 2-8°C. Two batches of a matrix, representative of each category, were inoculated with a strain of *Staphylococcus aureus* at three levels (low, medium and high). For each sample, 5 replicates,

represented by 5 different test portions, were tested by each method. This represents a total of 30 analyses per method.

The matrix-strain couples are presented in table 8.

*Table 8: matrix-strain pairs for the accuracy profile study*

Category	Matrix	Strain	Code	Origin	Contamination level CFU/mL
<b>Meat products</b>	Ground beef	<i>Staphylococcus aureus</i>	LBZ517	Meat	100 5000 100 000
<b>Dairy products</b>	Raw milk cheese	<i>Staphylococcus aureus</i>	EXX511	Raw milk cheese	
<b>Composite foods</b>	Vegetables mixed with mayonnaise (macédoine)	<i>Staphylococcus aureus</i>	CRKP93	Mixed salad	

### 3.2.2. Results

Raw data are provided in Appendix F.

The statistical data and the accuracy profiles are shown in figures 7 and 8.

Statistical calculations were done according to the Excel spreadsheet named AP calculation tool MCS 16140-2 clause 6-1-3-3 ver 31-07-2018.xlsx available at <http://standards.iso.org/iso/16140>.

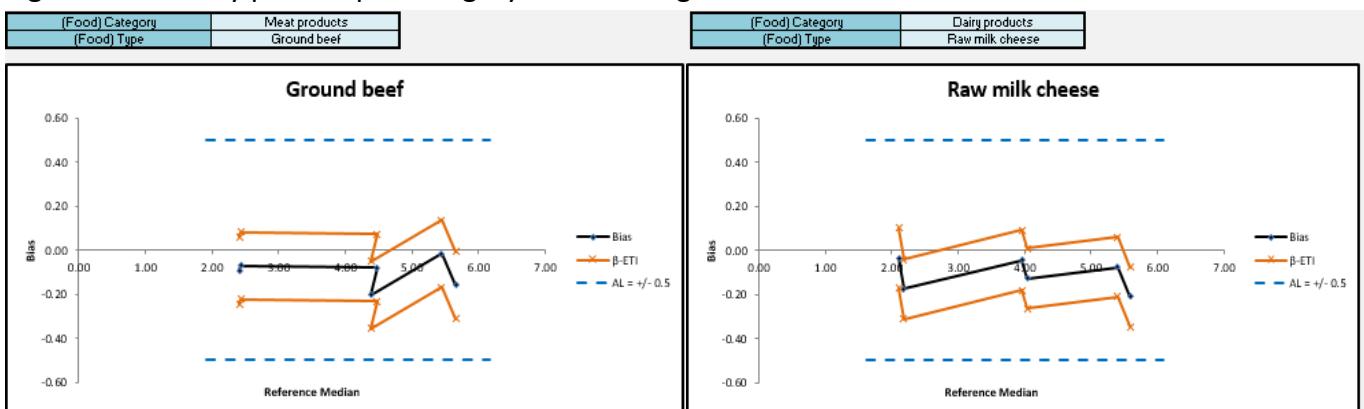
The probability for the tolerance interval is set at 80% and the central value is the median.

The acceptability limit is set at AL = 0.5 log<sub>10</sub> CFU/g or mL.

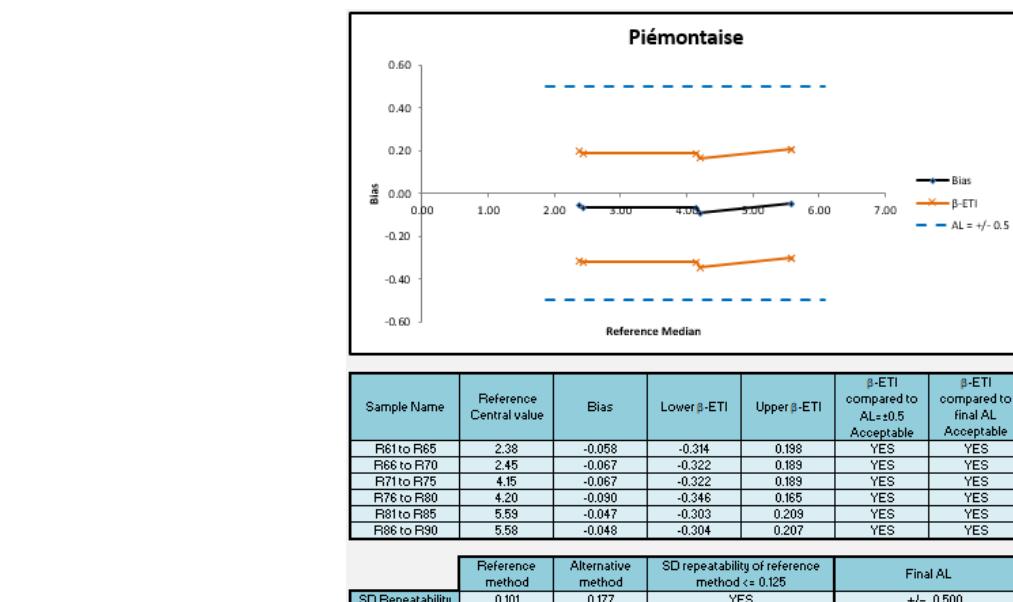
Figure 7: Accuracy profiles per category without melting



Figure 8: Accuracy profiles per category with melting



Sample Name	Reference central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=<0.5 Acceptable	β-ETI compared to final AL Acceptable	Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=<0.5 Acceptable	β-ETI compared to final AL Acceptable
R1 to R5	2.41	-0.093	-0.246	0.060	YES	YES	R31 to R35	2.11	-0.035	-0.170	0.101	YES	YES
R6 to R10	2.43	-0.070	-0.223	0.083	YES	YES	R36 to R40	2.18	-0.176	-0.312	-0.040	YES	YES
R11 to R15	4.48	-0.079	-0.232	0.074	YES	YES	R41 to R45	3.96	-0.045	-0.181	0.090	YES	YES
R16 to R20	4.38	-0.204	-0.357	-0.051	YES	YES	R46 to R50	4.04	-0.128	-0.263	0.008	YES	YES
R21 to R25	5.45	-0.016	-0.169	0.137	YES	YES	R51 to R55	5.40	-0.076	-0.211	0.060	YES	YES
R26 to R30	5.66	-0.158	-0.311	-0.005	YES	YES	R56 to R60	5.59	-0.211	-0.347	-0.075	YES	YES
SD Repeatability		0.123	0.106	YES	+/- 0.500		SD Repeatability		0.100	0.094	YES	+/- 0.500	



The tolerance intervals fall into the acceptability limits for all categories tested and for the two modalities of preparation of the CHROMagar™ Staph aureus media.

### 3.2.3. Conclusion

The CHROMagar™ Staph aureus method is accepted as being equivalent to the reference method for the two modalities of preparation for the three categories tested.

### **3.3. Inclusivity / exclusivity studies**

#### **3.3.1. Protocols**

- Inclusivity**

Thirty pure strains of coagulase-positive staphylococci were inoculated at approximately 100 CFU and counted with the media CHROMagar™ Staph aureus Poured plate and surface spreading in comparison with Baird-Parker and RPF agar media.

- Exclusivity**

Thirty pure strains of species close to coagulase-positive staphylococci were inoculated with a high concentration of stationary phase cells and then counted with CHROMagar™ Staph aureus media Poured plate and surface spreading in comparison with Baird-Parker and RPF agar media.

#### **3.3.2. Results**

The results for inclusiveness are provided in Table 9 and those for exclusivity in Table 10.

*Table 9: results of inclusivity*

#	Reference Microsept	Strain	Origin	Decimal dilution of the initial suspension	ISO 6888-2 (BP+RPF)			Alternative method CHROMagar™ Staph aureus						
					Aspect of the colonies		Number of CFU	Poured plate - Incubation 18 h at 37°C			Surface spreading - Incubation 18 h at 37°C			
					24h	48h		Number of CFU	Colour of the colonies	Aspect of the colonies	Number of CFU	Colour of the colonies	Aspect of the colonies	
1	DSM18597	<i>S. aureus</i> ATCC 13565	Ham, food poisoning	-1	84	2mm black colonies with halo	5mm black colonies with halo	104	84	purple	1mm purple colonies	118	purple	2mm purple colonies
2	DSM18587	<i>S. aureus</i> ATCC 19095	Human abscess	-1	87	1mm black colonies with halo	3mm black colonies with halo	121	95	purple	<1mm pink colonies	133	purple	1mm purple colonies
3	STA1.1 (50)	<i>S. aureus</i> ATCC 25923	Clinical isolate	-1	98	1.5mm black colonies with halo	3.5mm black colonies with halo	158	111	purple	<1mm purple colonies	135	purple	1.5mm purple colonies
4	STA1.2 (51)	<i>S. aureus</i> ATCC 6538	Enteric disease research	-1	107	1mm black colonies with halo	2mm black colonies with halo	25	110	purple	<1mm purple colonies	49	purple	1mm purple colonies
5	DSM683	<i>S. aureus</i> ATCC 9144	Enteric disease research	-1	130	<1mm black colonies with halo	2mm black colonies with halo	167	126	purple	<1mm purple colonies	202	purple	1mm purple colonies
6	DSM20373	<i>S. intermedius</i>	/	-1	67	1mm black colonies with halo	3mm black colonies with halo	25 à 24h et 74 à 48h	57	grey (very weak purple coloration)	<1mm grey colonies	61	grey (very weak purple coloration)	1mm grey colonies
7	DSM17421	<i>S. hyicus</i>	/	-1	92	1mm grey colonies without halo	4mm, black colonies without halo	145	98	pink	<0.5mm pink colonies	123	pink	1mm pink colonies
8	EAR487	<i>S. delphini</i>	Duck	-1	19	2mm colonies without halo	4mm, black colonies with weak halo	20	11	pink	<1mm pink colonies	14	pink	2mm pink colonies
9	DSM10244	<i>S. lutrae</i>	/	-1	139	1mm black colonies, weak halo	black colonies, 4mm, weak halo	185	0 (no growth)	/	/	0 (no growth)	/	/
10	AFHK27	<i>S. aureus</i>	Tuna salad, red beans, corn, tomatoes	-1	172	2mm black colonies with halo	5mm black colonies with halo	123	158	purple	<1mm purple colonies	148	purple	1.5mm purple colonies
11	GAK477	<i>S. aureus</i>	Burger	-1	192	1-1.5mm black colonies with weak halo	3mm black colonies with halo	185	175	purple	<1mm purple colonies	150	purple	1.5mm purple colonies
12	BDW129	<i>S. aureus</i>	Tuna and raw vegetables sandwich	-1	98	1.5mm black colonies with halo	7mm black colonies with halo	54	101	purple	<1mm purple colonies	94	purple	1mm purple colonies
13	HBL504	<i>S. aureus</i>	Lasagna	-1	158	2mm black colonies with halo	5mm black colonies with halo	164	125	purple	1mm purple colonies	179	purple	1.5mm purple colonies
14	KER837	<i>S. aureus</i>	Paella rice	-1	116	2mm black colonies with halo	4mm black colonies with weak halo	132	114	purple	1mm purple colonies	154	purple	1.5mm purple colonies
15	MDV990	<i>S. aureus</i>	Rabbit terrine with leeks	-1	135	2mm black colonies with weak halo	5mm black colonies with weak halo	104	130	purple	1mm purple colonies	138	purple	2mm purple colonies
16	BHLT86	<i>S. aureus</i>	Complete tuna sandwich	-1	108	1mm black colonies with halo	2mm black colonies with halo	76	89	purple	<1mm purple colonies	101	purple	1-1.5mm purple colonies
17	CRKP93	<i>S. aureus</i>	Mixed salad	-1	92	1mm black colonies with halo	2mm black colonies with halo	105	89	purple	<1mm purple colonies	103	purple	1-1.5mm purple colonies
18	KNWQ77	<i>S. aureus</i>	Strasbourg salad	-1	123	2mm black colonies with halo	3mm black colonies with halo	121	110	purple	<1mm purple colonies	145	purple	1-1.5mm purple colonies
19	LQVP54	<i>S. aureus</i>	Organic sausage	-1	111	2 mm black colonies with halo	3mm black colonies with halo	114	106	purple	<1mm purple colonies	130	purple	1-1.5mm purple colonies
20	BBF899	<i>S. aureus</i>	Turkey carcass	-1	132	1mm black colonies without halo	2mm black colonies with halo	141	141	purple	<1mm purple colonies	>300	purple	1mm purple colonies
21	DBP642	<i>S. aureus</i>	Small turkey meat	-1	4	1mm black colonies without halo	6mm black colonies with halo	21	5	purple	<1mm purple colonies	43	purple	1mm purple colonies
22	CFQ207	<i>S. aureus</i>	Chicken thigh	-1	82	1mm black colonies with halo	6mm black colonies with halo	115	89	purple	<1mm purple colonies	132	purple	1mm purple colonies
23	LBZ517	<i>S. aureus</i>	Meat	-1	96	1mm black colonies with halo	6mm black colonies with halo	190	109	purple	<1mm purple colonies	158	purple	1mm purple colonies
24	AVJD48	<i>S. aureus</i>	Herb sausage	-1	91	1mm black colonies with halo	5mm black colonies with halo	93	95	purple	<1mm purple colonies	124	purple	1mm purple colonies
25	BYEL73	<i>S. aureus</i>	Raw turkey wing	-1	100	1mm black colonies with halo	6mm black colonies with halo	126	97	purple	<1mm purple colonies	129	purple	<1mm purple colonies
26	ACY440	<i>S. aureus</i>	Shrimps	-1	114	<1mm black colonies without halo	5mm black colonies with halo	93	110	purple	<1mm purple colonies	95	purple	1mm purple colonies
27	BATB46	<i>S. aureus</i>	Smoked herring	-1	105	1mm black colonies with halo	5mm black colonies with halo	99	91	purple	<1mm purple colonies	119	purple	1mm purple colonies
28	EXX511	<i>S. aureus</i>	Raw milk cheese "Saint-Mathurin"	-1	87	<1mm black colonies with halo	5mm black colonies with halo	110	104	purple	<1mm purple colonies	112	purple	1mm purple colonies
29	GAU875	<i>S. aureus</i>	Tomme of ewe cheese with thermized milk	-1	112	1mm black colonies with halo	6mm black colonies with halo	90	96	purple	0,5mm purple colonies	105	purple	<1mm purple colonies
30	HCU266	<i>S. aureus</i>	Custard	-1	90	<1mm black colonies with halo	3-4mm black colonies with halo	178	76	purple	<1mm purple colonies	127	purple	<1mm purple colonies

**Table 10: results of exclusivity**

#	Reference Microsept	Strain	Origin	Dil.	ISO 6888-2 (BP+RPF)			Alternative method CHROMagar™ Staph aureus						
					Dil.	Number of CFU on TSA agar medium	Aspect of the colonies	Surface spreading			Pour plate			
								Dil.	Number of CFU	Colour of the colonies	Dil.	Number of CFU	Colour of the colonies	
1	WJM246	<i>Bacillus subtilis</i>	Curcuma	-3 -2	3 40	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
2	CBB622	<i>Bacillus cereus groupe III</i>	Piemontaise	-4 -3	16 >200	-3 -2	0 (no growth) 1	1mm white colonies without halo	-3 -2	0 (no growth) 24	1mm pink colonies characteristic of <i>Bacillus</i>	-3 -2	0 (no growth) 26	<1mm pink colonies characteristic of <i>Bacillus</i>
3	YFJ492	<i>Carnobacterium divergens</i>	Salmon steak	-5 -4	>300 >300	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
4	ARP296	<i>Citrobacter brakii</i>	Raw porc	-7 -6	25 152	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
5	NWR779	<i>Pantoea agglomerans</i>	Well water	-7 -6	74 >200	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
6	GCQ471	<i>Enterococcus faecalis</i>	Raw milk cheese	-7 -6	11 159	-3 -2	0 (no growth) 0 (no growth)	<1mm white colonies without halo	-3 -2	1 23	1mm blue colonies	-3 -2	0 (no growth) 4	<1mm blue colonies
7	GBL293	<i>Escherichia coli</i>	Unbaked chocolate cookie	-7 -6	183 >300	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
8	ANW492	<i>Lactobacillus brevis</i>	Dairy product	-4 -3	5 80	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
9	EFP530	<i>Lactobacillus gasseri</i>	Probiotic	-6 -5	2 37	-3 -2	0 (no growth) 3	<1mm white colonies without halo	-4 -3	126 >300	1mm blue colonies	-4 -3	212 >300	<1mm blue colonies
10	DZW418	<i>Leuconostoc mesenteroides</i>	Zucchini flan	-4 -3	30 >200	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
11	ALB478	<i>Listeria monocytogenes</i>	Salmon tagliatelles	-7 -6	81 >200	-4 -3	>300 >300	<1mm white colonies without halo	-4 -3	>300 >300	1mm blue colonies	-4 -3	>300 >300	<1mm blue colonies
12	NBV721	<i>Micrococcus luteus</i>	Pond water	-5 -4	170 >300	-4 -3	>300 >300	<1mm white colonies without halo	-4 -3	>300 >300	1mm white colonies	-4 -3	>300 >300	<1mm white colonies
13	NEF806	<i>Enterococcus faecium</i>	Well water	-6 -5	47 168	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
14	YEG730	<i>Pseudomonas aeruginosa</i>	Water	-7 -6	12 140	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
15	MDD911	<i>Salmonella Enteritidis</i>	Cooked spinach salmon turnover	-7 -6	110 >300	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
16	CXZ948	<i>Brachotrix thermosphacta</i>	Sushi	-6 -5	0 no grow 10	-3 -2	0 (no growth) 0 (no growth)	/	-4 -3	76 193	1mm white colonies	-4 -3	58 201	<1mm blue colonies
17	ADLA78	<i>Micrococcus sp</i>	Vegetal extract	-7	47	-3	0 (no growth)	/	-3	0 (no growth)	/	-3	0 (no growth)	/
18	FND144	<i>Brevibacillus parabrevis</i>	Cheese	-2 -1	4 59	-2 -1	0 (no growth) 0 (no growth)	/	-2 -1	0 (no growth) 0 (no growth)	/	-2 -1	0 (no growth) 0 (no growth)	/
19	EDG277	<i>Bifidobacterium lactis</i>	Probiotic	-9 -8	5 44	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 0 (no growth)	/
20	DSP656	<i>Lactococcus lactis</i>	Water	-8 -7	17 81	-3 -2	0 (no growth) 0 (no growth)	/	-3 -2	0 (no growth) 5	1,5mm white colonies	-3 -2	0 (no growth) 0 (no growth)	/
21	UMP052	<i>Corynebacterium frankenforstense</i>	Raw chicken	-8 -7	6 78	-5 -4	>300 >300	<1mm white colonies without halo	-5 -4	>300 >300	<1mm white colonies	-5 -4	>300 >300	<1mm white colonies
22	UJC759	<i>Staphylococcus caprae</i>	Goat milk	-6 -5	218 >300	-8 -7	8 55	<1mm white colonies without halo	-8 -7	5 52	1mm white colonies	-8 -7	23 163	<1mm white colonies
23	WRM124	<i>Staphylococcus carnosus</i>	Dry sausage	-7 -6	13 123	-6 -5	0 (no growth) 0 (no growth)	/	-6 -5	45 110	1mm white colonies	-6 -5	48 158	<1mm white colonies
24	VNY469	<i>Staphylococcus epidermidis</i>	Human skin	-8 -7	>300 >300	-8 -7	0 (no growth) >300	1mm white colonies without halo	-8 -7	0 (no growth) 0 (no growth)	/	-8 -7	0 (no growth) 0 (no growth)	/
25	DSM30515	<i>Staphylococcus hominis</i>	Human skin	-5 -4	22 >200	-5 -4	0 (no growth) 0 (no growth)	/	-5 -4	0 (no growth) 0 (no growth)	/	-5 -4	0 (no growth) 0 (no growth)	/
26	AAY895	<i>Staphylococcus saprophyticus</i>	Lasagna	-7 -6	1 48	-7 -6	1 57	<1mm white colonies without halo	-7 -6	2 53	<1mm white colonies	-7 -6	4 62	<1mm white colonies
27	NDN153	<i>Staphylococcus equorum</i>	Fountain water	-5 -4	8 62	-4 -3	0 (no growth) 26	<1mm white colonies without halo	-5 -3	0 (no growth) 45	<1mm white colonies	-4 -3	1 44	<1mm white colonies
28	TYY149	<i>Staphylococcus warneri</i>	Beef	-8 -7	>300 >300	-8 -7	>300 >300	1mm white colonies without halo	-8 -7	>300 >300	<1mm white colonies	-8 -7	>300 >300	<1mm white colonies
29	VGH553	<i>Staphylococcus xylosus</i>	Raw milk cheese	-8 -7	>300	-8 -7	2 55	1mm white colonies without halo	-8 -7	51	<1mm white colonies	-8 -7	41 163	<1mm white colonies
30	CCN391	<i>Staphylococcus sciuri</i>	Hake	-7 -6	6 83	-6 -5	0 (no growth) 0 (no growth)	/	-6 -5	0 (no growth) 0 (no growth)	/	-6 -5	0 (no growth) 0 (no growth)	/

### 3.3.3. Interpretation

- Inclusivity**

For twenty-seven strains tested, a growth was observed on CHROMagar™ Staph aureus media with presence of characteristic colonies.

For the *Staphylococcus intermedius* strain, a growth was observed but with presence of non-characteristic colonies on CHROMagar™ Staph aureus media (grey with weak purple coloration colonies).

For the *Staphylococcus hyicus* strain (DSM17421), a growth was observed on CHROMagar™ Staph aureus media with presence of pink colonies. *Staphylococcus hyicus* species is coagulase variable and this enzymatic activity can be revealed when using porcine plasma (Pickering and al. 2021).

Since DSM17421 strain gave negative results on Baird-Parker + RPF medium and in coagulase assay, it was not considered in the specificity calculation.

For the *Staphylococcus lutrae* strain, no growth was observed on the CHROMagar™ Staph aureus media, unlike the Baird-Parker + RPF medium. No other strain of *Staphylococcus lutrae* could be retested.

Two *Staphylococcus aureus* strains (KER837 and MDV990) grew black colonies with weak halo on Baird-Parker + RPF plates after 48 hours incubation at 34-38°C, whereas those strains grew characteristic colonies on CHROMagar™ Staph aureus after 18 hours incubation at 37°C.

Two coagulase positive staphylococci, *Staphylococcus delphini* and *Staphylococcus lutrae* showed weak halos surrounding the colonies on reference plates.

- Exclusivity

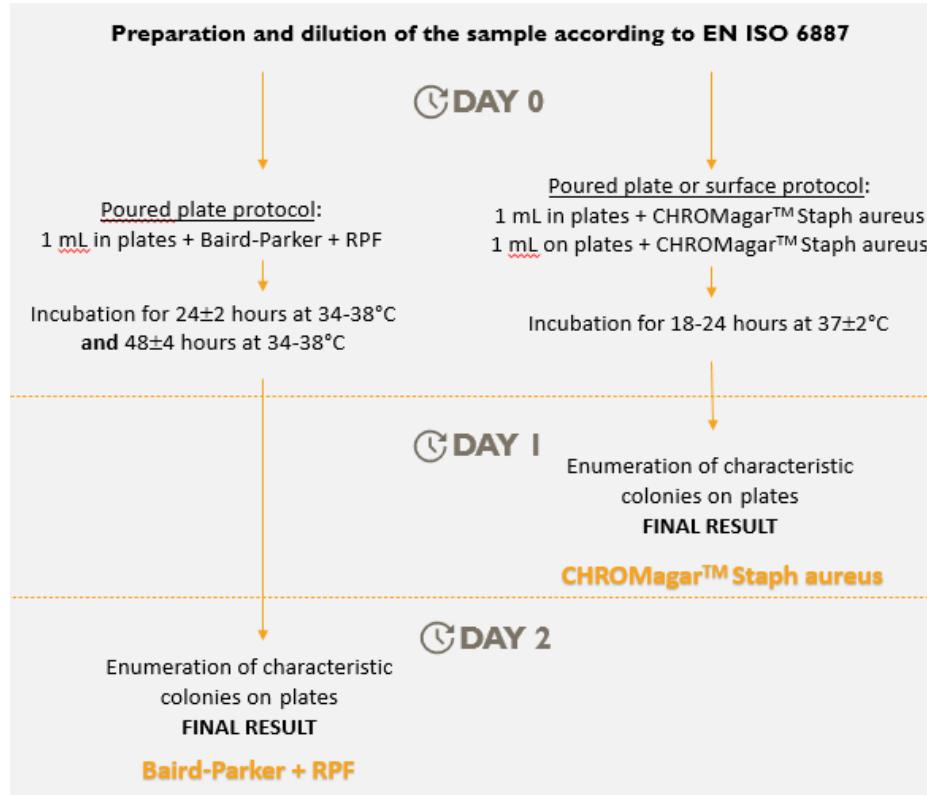
For all the non-target strains tested, no cross-reaction was observed.

#### 3.3.4. Conclusion

The inclusivity and the exclusivity of the CHROMagar™ Staph aureus medium are satisfactory.

### 3.4. General conclusion for the methods comparison study

The CHROMagar™ Staph aureus medium offers 2 inoculation methods (poured plate and surface spreading) both allowing a result in 24 hours maximum against 48 hours for the Baird-Parker + RPF medium.



The relative accuracy study shows a good correlation between the CHROMagar™ Staph aureus medium and the Baird-Parker + RPF used in the reference method for all the food categories tested. The bias observed between the CHROMagar™ Staph aureus medium and the Baird-Parker + RPF medium is +0.03 log for surface spreading and -0.03 log for poured plate inoculation.

The accuracy profile study illustrates that the performances of the alternative method are comparable to those of the reference method. For the 3 categories tested in poured plate modality with or without fusion of the CHROMagar™ Staph aureus medium, the profiles clearly show that all the results obtained were within the acceptability limits defined at  $\pm 0.5$  log.

The selectivity of the CHROMagar™ Staph aureus medium is 100%. The specificity of the CHROMagar™ Staph aureus medium is 100% for *Staphylococcus aureus* strains and 93.1% for coagulase-positive *Staphylococcus* strains.

Guillaume MESNARD  
Deputy manager of R&D department  
Le Lion d'Angers, January 2<sup>nd</sup>, 2023



## **APPENDICES**

## **Appendix A – Flow diagram of the CHROMagar™ Staph aureus method**

Preparation and dilution of the sample according to EN ISO 6887



### Surface spreading protocol:

1 mL on 3 CHROMagar™ Staph aureus plates  
+  
0,1 mL on 1 CHROMagar™ Staph aureus plate

### Poured plate protocol:

1 mL in plate and addition of 18 mL  
of CHROMagar™ Staph aureus  
Repeat for other dilutions



Incubation at  $37\pm2^{\circ}\text{C}$  for 18-24 hours



Enumeration of characteristic colonies on plates

## **Appendix B – Flow diagram of the ISO 6888-2 method**

Preparation and dilution of the sample according to EN ISO 6887

1 ml in plates and addition of 18 mL of  
Baird-Parker + RPF  
Repeat for other dilutions

Incubation for  $24\pm 2$  hours at 34-38°C  
and  $48\pm 4$  hours at 34-38°C

Enumeration of characteristic colonies on plates

**Appendix C - Artificial contaminations**

Category	Sample code	Sample name	Contamination	Strain	Code	Strain origin	Injury protocol
MP	2263532	Ham	ac	<i>Staphylococcus aureus</i>	CFQ207	Chicken tigh	Seeding - 72h at 3±2°C
MP	2263530	Duck rillette	ac	<i>Staphylococcus aureus</i>	CFQ207	Chicken tigh	Seeding - 72h at 3±2°C
MP	2263531	Smoked bacon	ac	<i>Staphylococcus aureus</i>	CFQ207	Chicken tigh	Seeding - 72h at 3±2°C
DP	2263529	Pasteurized milk cheese "Brillant savarin" Fat 35%	ac	<i>Staphylococcus aureus</i>	SCA003	Pasteurized milk cheese	Seeding - 72h at 3±2°C
DP	2263528	Pasteurized milk cheese "Brie"	ac	<i>Staphylococcus aureus</i>	SCA003	Pasteurized milk cheese	Seeding - 72h at 3±2°C
DP	2263527	Pasteurized milk cheese "Bleu d'Auvergne"	ac	<i>Staphylococcus aureus</i>	SCA003	Pasteurized milk cheese	Seeding - 72h at 3±2°C
DP	2263526	Milk powder	ac	<i>Staphylococcus aureus</i>	HCU266	Custard	Spiking - 10 min at 56°C
DP	2263525	Infant milk powder	ac	<i>Staphylococcus aureus</i>	HCU266	Custard	Spiking - 10 min at 56°C
SFP	2263522	Raw salmon	ac	<i>Staphylococcus aureus</i>	BATB46	Smoked herring	Seeding - 72h at 3±2°C
SFP	2263521	Marinated shrimp	ac	<i>Staphylococcus aureus</i>	BATB46	Smoked herring	Seeding - 72h at 3±2°C
SFP	2263520	Hake salmon gratin	ac	<i>Staphylococcus aureus</i>	ACY440	Shrimp	Seeding - 72h at 3±2°C
SFP	2263519	Cooked hake	ac	<i>Staphylococcus aureus</i>	ACY440	Shrimp	Seeding - 72h at 3±2°C
SFP	2263518	Scallop terrine	ac	<i>Staphylococcus aureus</i>	ACY440	Shrimp	Seeding - 72h at 3±2°C
SFP	2281331	Salmon shell	ac	<i>Staphylococcus aureus</i>	BATB46	Smoked herring	Seeding - 72h at 3±2°C
SFP	2281329	Crabe	ac	<i>Staphylococcus aureus</i>	BATB46	Smoked herring	Seeding - 72h at 3±2°C
VP	2263524	Infant cereals	ac	<i>Staphylococcus aureus</i>	CRKP93	Mayonnaise vegetables	Seeding - 72h at 3±2°C
VP	2263514	Grated carrots	ac	<i>Staphylococcus aureus</i>	KER837	Rice for paella	Seeding - 72h at 3±2°C
VP	2263513	Celery remoulade	ac	<i>Staphylococcus aureus</i>	KER837	Rice for paella	Seeding - 72h at 3±2°C
VP	2263512	Vegetables pan-fried	ac	<i>Staphylococcus aureus</i>	KER837	Rice for paella	Seeding - 72h at 3±2°C
VP	2263511	Peas	ac	<i>Staphylococcus aureus</i>	CRKP93	Mayonnaise vegetables	Seeding - 72h at 3±2°C
VP	2263510	Couscous vegetable	ac	<i>Staphylococcus aureus</i>	CRKP93	Mayonnaise vegetables	Seeding - 72h at 3±2°C
VP	2281325	Green beans	ac	<i>Staphylococcus aureus</i>	AFHK27	Vegetables salad	Seeding - 72h at 3±2°C
VP	2281323	Asperge	ac	<i>Staphylococcus aureus</i>	AFHK27	Vegetables salad	Seeding - 72h at 3±2°C
VP	2281324	Red cabbage	ac	<i>Staphylococcus aureus</i>	AFHK27	Vegetables salad	Seeding - 72h at 3±2°C
VP	2263516	Cauliflower	ac	<i>Staphylococcus aureus</i>	CRKP93	Mayonnaise vegetables	Seeding - 72h at 3±2°C
CF	2263509	Pastry	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Seeding - 72h at 3±2°C
CF	2263508	Whole egg powder	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Seeding - 72h at 3±2°C
CF	2263507	Pastry with pear and caramel	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Seeding - 72h at 3±2°C
CF	2263523	Cod Accra	ac	<i>Staphylococcus aureus</i>	BATB46	Smoked herring	Seeding - 72h at 3±2°C
CF	2281327	Tacos beef Biggy	ac	<i>Staphylococcus aureus</i>	GAK477	Burger	Seeding - 72h at 3±2°C
CF	2281328	Ravioli ham and cheese	ac	<i>Staphylococcus aureus</i>	GAK477	Burger	Seeding - 72h at 3±2°C
CF	2313282	Vegetables pan-fried	ac	<i>Staphylococcus aureus</i>	AFHK27	Vegetables salad	Seeding - 72h at 3±2°C
AF	2263504	Cat food	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Spiking - 10 min at 56°C
AF	2263502	Dog treats	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Spiking - 10 min at 56°C
AF	2263505	Dog food	ac	<i>Staphylococcus aureus</i>	VNC837	Environment	Spiking - 10 min at 56°C

MP: meat products

DP: dairy products

SFP: seafood products

VP: vegetal products

CF: composite foods

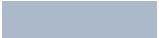
AF: animal feed

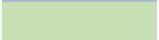
## **Appendix D - Relative trueness study - Raw results**

### **Caption:**

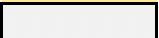
ac: artificially contaminated

nc: naturally contaminated

 Estimated number

 Microorganisms are present but less than 40 per g or mL

 Results not countable or inferior to the limit of quantification

 Abundant interfering flora

\* samples analyzed with CHROMagar™ Staph aureus media supplemented with 2.5 mg/L of Tellurite

**Appendix D - Relative trueness study - Raw results**

Category	Sample code	Sample type	Contamination	Dil.	Reference method ISO 6888-2			Surface spreading - Incubation 18 h at 37°C			Poured plate - Incubation 18 h at 37°C		
					CFU after 24h	CFU after 48h	Result	CFU	Conf.	Result	CFU	Conf.	Result
Meat products	2263501	Raw turkey fin	nc	-1 -2	31 14	31 14	450	64 3	100% 100%	670	15 0	100% /	150
	2263500	Chopped steak	nc	-1 -2	31 1	31 1	320	77 20	100% 100%	970	38 11	100% 100%	490
	2263499	Plain sausage	nc	-1 -2	0 0	0 0	<10	3	100%	30	43 4	100% 100%	470
	2263498	Raw chicken	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	4 0	100% /	40
	2263497	Breaded cutlet	nc	-1 -2	1 0	1 0	10	0 0	/	<10	4 0	100% /	40
	3363496	Brest of chicken	nc	-1 -2	1 0	1 0	10	2 0	100% /	20	18 1	100% 100%	190
	2263495	Herb chipolata	nc	-1 -2	3 0	3 0	30	2 0	100% /	20	7 0	100% /	70
	2263544	Chicken garlic	nc	-1 -2	>300 >300	>300 >300	>3 0000	>300 >300	100% 100%	>3 0000	>300 >300	100% 100%	>3 0000
	2263574	Ham	nc	-1 -2	261 50	261 51	2 800	200 43	100% 100%	2 200	100 20	100% 100%	1 100
	2281365	Turkey fat	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2281359	Minced tex mex poultry	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2281357	Breast of chicken	nc	-1 -2	17 0	18 0	180	15 0	100% /	150	27 4	100% 100%	280
	2263662	Cooked roast pork	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263532	Ham	ac	-1 -2	43 7	45 7	470	44 10	100% 100%	490	35 3	100% 100%	350
	2263530	Duck rillette	ac	-2 -3	40 7	40 7	4 300	47 5	100% 100%	4 700	35 3	100% 100%	3 500
	2263531	Smoked bacon	ac	-1 -2	87 11	91 11	930	73 5	100% 100%	710	69 1	100% 100%	640
	2281318	nature sausage	nc	-1 -2	138 13	138 13	1 400	231 26	100% 100%	2 300	200 31	100% 100%	2 100
	2281317	Rabbit sausage	nc	-1 -2	12 2	14 3	160	25 5	100% 100%	270	35 2	100% 100%	340
Dairy products	2263494	Raw milk cow's cheese "Mont d'or" fat 45%	nc	-2 -3	101 7	101 7	1 100	125 0	100% /	1 100	0 0	/	<10
	2263493	Raw milk goat cheese "Chabis" fat 20%	nc	-1 -2	2 0	2 0	20	0 0	/	<10	1 0	100% /	10
	2263492	Raw milk	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263491	Pasteurized milk cheese	nc	-1 -2	1 0	1 0	10	0 0	/	<10	0 0	/	<10
	2263575	Raw milk cheese	nc	-1 -2	157 26	157 26	1 700	131 29	100% 100%	1 500	59 5	100% 100%	580
	2281366	Raw milk cheese "Trebois"	nc	-1 -2	28 3	28 3	280	8 0	100% /	80	8 1	100% 100%	80
	2281364	Raw milk cheese "Trebois"	nc	-1 -2	30 6	32 6	350	25 0	100% /	250	16 4	100% 100%	180
	2281360	Fresh cream with raw milk	nc	-1 -2	1 0	1 0	10	1 1	100% 100%	20	1 0	100% /	10
	2281358	Pasteurized milk	nc	-1 -2	4 0	4 0	40	2 0	100% /	20	9 0	100% /	90
	2263663	Raw milk cheese "Morbier"	nc	-1 -2	>300 48	>300 48	4 800	>300 38	100% 100%	3 800	>300 38	100% 100%	3 800
	2263529	Pasteurized milk cheese "Brillant savarin" Fat 35%	ac	-1 -2	60 7	60 7	610	60 7	100% 100%	610	61 7	100% 100%	620
	2263528	Pasteurized milk cheese "Brie"	ac	-1 -2	120 16	121 16	1 250	147 12	100% 100%	1 450	108 9	100% 100%	1 100
	2263527	Pasteurized milk cheese "Bleu d'Auvergne"	ac	-1 -3	135 66	135 73	14 000	120 81	100% 100%	13 000	115 73	100% 100%	12 000
	2263526	Milk powder	ac	-1 -2	6 10	7 12	730	5 20	100% 100%	780	12 10	100% 100%	770
	2263525	Infant milk powder	ac	-1 -2	125 10	133 12	1 300	166 20	100% 100%	1 700	101 10	100% 100%	1 000
Seafood products	2263490	Back saithe	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263489	Smoked herring	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263488	Smoked salmon	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2281363	Smoked mackerels	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263522	Raw salmon	ac	-1 -2	68 4	68 4	650	111 16	100% 100%	1 200	111 11	100% 100%	1 100
	2263521	Marinated shrimp	ac	-1 -3	88 11	93 11	9 400	90 7	100% 100%	8 800	48 7	100% 100%	4 700
	2263520	Hake salmon gratin	ac	-1 -2	35 5	35 5	360	77 7	100% 100%	760	47 1	100% 100%	440
	2263519	Cooked hake	ac	-1 -2	97 17	99 17	1 100	126 10	100% 100%	1 200	105 5	100% 100%	1 000
	2263518	Scallop terrine	ac	-2 -3	50 9	50 9	5 400	64 10	100% 100%	6 700	36 4	100% 100%	3 600
	2281331	Salmon shell	ac	-2 -3	8 0	8 0	800	5 1	100% 100%	550	7 1	100% 100%	730
	2281329	Crabe	ac	-1 -2	6 0	6 0	60	12 1	100% 100%	120	11 1	100% 100%	110

Category	Sample code	Sample type	Contamination	Dil.	Reference method ISO 6888-2			Surface spreading - Incubation 18 h at 37°C			Poured plate - Incubation 18 h at 37°C		
					CFU after 24h	CFU after 48h	Result	CFU	Conf.	Result	CFU	Conf.	Result
Vegetal products	2263524	Infant cereals	ac	-1 -2	15 1	15 1	150	10 2	100% 100%	110	7 0	100% /	70
	2263514	Grated carrots	ac	-1 -2	18 4	18 4	200	19 4	100% 100%	210	26 3	100% 100%	260
	2263513	Celery remoulade	ac	-1 -2	16 3	16 3	170	5 1	100% 100%	60	18 4	100% 100%	200
	2263512	Vegetables pan-fried	ac	-2 -3	59 3	59 3	5 600	59 10	100% 100%	6 300	53 0	100% 100%	4 800
	2263511	Peas	ac	-1 -2	50 7	56 7	570	70 4	100% 100%	670	65 7	100% 100%	660
	2263510	Couscous vegetable	ac	-2 -3	20 0	23 1	2 200	20 2	100% 100%	2 000	39 8	100% 100%	4 300
	2281325	Green beans	ac	-1 -2	4 0	5 0	50	5 0	100% /	50	2 0	100% /	20
	2281323	Asperge	ac	-2 -3	93 6	93 6	9 000	108 12	100% 100%	10 900	92 5	100% 100%	8 900
	2281324	Red cabbage	ac	-2 -3	42 2	42 2	4 000	42 1	100% 100%	3 900	27 3	100% 100%	2 700
	2263516	Cauliflower	ac	-1 -2	159 30	159 30	1 700	188 18	100% 100%	1 900	175 16	100% 100%	1 700
Composite foods	2263487	Tuna salad, tomates, corn, red beans	nc	-1 -2	4 0	4 0	40	0 0	/	<10	0 0	/	<10
	2263486	Vegetarian salad	nc	-1 -2	2 0	2 0	20	0 0	/	<10	0 0	/	<10
	2263485	Endive walnut pear salad	nc	-1 -2	3 0	3 0	30	0 0	/	<10	0 0	/	<10
	2263484	Vegetables mixed with mayonnaise	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263483	Strasbourg salad	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263482	Viennese tuna sandwich	nc	-1 -2	17 1	17 1	180	5 0	100% 100%	50	0 0	/	<10
	2263481	Tartiflette croissants	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	1 0	100% /	10
	2263480	Hachis Parmentier	nc	-1 -2	7 0	7 0	70	2 0	100% /	20	1 0	100% /	10
	2263479	Quich toasts	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2263478	Paris-Brest	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2281361	Pastry 3 chocolates	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10
	2247843	Pastry *	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10*
	2263509	Pastry *	ac	-1 -2	23 0	27 0	245	47 8	100% 100%	500	46 4	100% 100%	455*
	2263508	Whole egg powder	ac	-1 -2	66 7	72 7	720	76 5	100% 100%	740	78 9	100% 100%	790
	2263507	Pastry with pear and caramel	ac	-2 -3	59 5	59 5	5 800	68 6	100% 100%	6 900	10 4	100% 100%	1 300
	2281362	Pearl pasta surimi and prawns *	nc	-1 -2	0 0	0 0	<10	0 0	/	<10	0 0	/	<10*
	2263665	Salad salmon tomatoes pasta potatoes *	nc	-1 -2	0 0	0 0	<10	7 0	100% /	70	7 0	100% /	70*
	2263523	Cod Accra	ac	-1 -2	56 7	56 7	570	51 10	100% 100%	550	63 6	100% 100%	630
	2281310	Chicken sandwich	nc	-1 -2	165 33	175 33	1 900	>300 56	100% 100%	5 100	>300 31	100% 100%	3 000
	2281313	Smoked salmon and fresh cheese sandwich	nc	-1 -2	7 0	9 0	90	15 1	100% 100%	150	19 1	100% 100%	180
	2281327	Tacos beef Biggy	ac	-2 -3	19 1	19 1	1 820	26 3	100% 100%	2 600	28 2	100% 100%	2 700
	2281328	Ravioli ham and cheese	ac	-2 -3	16 0	16 0	1 600	13 2	100% 100%	1 400	25 3	100% 100%	2 600
	2281309	Pastry *	nc	-1 -2	7 0	11 0	110	8 1	100% 100%	80	9 0	100% /	90*
	2313282	Vegetables pan-fried	ac	-2 -3	59 3	59 3	5 600	59 10	100% 100%	6 300	53 0	100% 100%	4 800
Animal feed	2263504	Cat food	ac	-1 -2	123 14	136 15	1 400	221 35	100% 100%	2 300	266 28	100% 100%	2 700
	2263502	Dog treats	ac	-1 -2	44 5	45 5	500	80 8	100% 100%	800	56 4	100% 100%	550
	2263505	Dog food	ac	-2 -3	4 0	5 0	500	7 2	100% 100%	800	3 0	100% /	300

## Appendix E - Relative trueness study - Statistical calculations

Cat.	#	Sample type	RM	AM	RM	AM	Mean	Difference
			CFU/g	CFU/g	log CFU/g	log CFU/g		
Meat products ①	2263501	Raw turkey fin	450	670	2.65	2.83	2.74	0.17
	2263500	Chopped steak	320	970	2.51	2.99	2.75	0.48
	2281357	Breast of chicken	180	150	2.26	2.18	2.22	-0.08
	2263531	Smoked bacon	930	710	2.97	2.85	2.91	-0.12
	2263530	Duck rillette	4 300	4 700	3.63	3.67	3.65	0.04
	2263532	Ham	470	490	2.67	2.69	2.68	0.02
	2281317	Rabbit sausage	160	270	2.20	2.43	2.32	0.23
	2281318	Sausage	1400	2400	3.15	3.38	3.26	0.23
	2263574	Ham	2800	2200	3.45	3.34	3.39	-0.10
	<b>Average difference of the category</b>							0.10
	<b>Standard deviation of differences</b>							0.20
Dairy products ②	2263494	Raw milk cow's cheese "Mont d'or" fat 45%	1100	1100	3.04	3.04	3.04	0.00
	2263575	Raw milk cheese	1700	1500	3.23	3.18	3.20	-0.05
	2281366	Cheese Trebois	280	80	2.45	1.90	2.18	-0.54
	2281364	Cheese Trebois	350	250	2.54	2.40	2.47	-0.15
	2263663	Morbier	4800	3800	3.68	3.58	3.63	-0.10
	2263529	Cheese "Brillat savarin" fat 32%	610	610	2.79	2.79	2.79	0.00
	2263528	Pasteurized cheese "brie"	1250	1450	3.10	3.16	3.13	0.06
	2263527	Bleu d'Auvergne	14 000	13 000	4.15	4.11	4.13	-0.03
	2263526	Milk powder	730	780	2.86	2.89	2.88	0.03
	2263525	Infant milk powder	1 300	1 700	3.11	3.23	3.17	0.12
	<b>Average difference of the category</b>							-0.07
	<b>Standard deviation of differences</b>							0.18
Seafood products ③	2263522	Salmon	650	1200	2.81	3.08	2.95	0.27
	2263521	Marinated shrimp	9400	8800	3.97	3.94	3.96	-0.03
	2263520	Hake salmon gratin	360	760	2.56	2.88	2.72	0.32
	2281331	Shell salmon	800	550	2.90	2.74	2.82	-0.16
	2281329	Crab	60	120	1.78	2.08	1.93	0.30
	2263519	Cooked hake	1100	1200	3.04	3.08	3.06	0.04
	2263518	Scallop terrine	5400	6700	3.73	3.83	3.78	0.09
	<b>Average difference of the category</b>							0.12
	<b>Standard deviation of differences</b>							0.19
Vegetables ④	2263524	Infant cereals	150	110	2.18	2.04	2.11	-0.13
	2263514	Grated carrots	200	210	2.30	2.32	2.31	0.02
	2281325	Green beans	50	50	1.70	1.70	1.70	0.00
	2281323	Asperge	9 000	10 900	3.95	4.04	4.00	0.08
	2281324	Red cabbage	4 000	3 900	3.60	3.59	3.60	-0.01
	2263516	Cauliflower	1 700	1 900	3.23	3.28	3.25	0.05
	2263513	Celery remoulade	170	60	2.23	1.78	2.00	-0.45
	2263512	Vegetables pan-fried	5 600	6 300	3.75	3.80	3.77	0.05
	2263511	Chickpeas	570	670	2.76	2.83	2.79	0.07
	2263510	Couscous vegetable	2 200	2 000	3.34	3.30	3.32	-0.04
	<b>Average difference of the category</b>							-0.04
	<b>Standard deviation of differences</b>							0.16
Composite foods ⑤	2263482	Viennese tuna sandwich	180	50	2.26	1.70	1.98	-0.56
	2281310	Chicken sandwich	1900	5100	3.28	3.71	3.49	0.43
	2281313	Smoked salmon and fresh cheese sandwich	90	150	1.95	2.18	2.07	0.22
	2281327	Tacos beef Biggy	1820	2600	3.26	3.41	3.34	0.15
	2281328	Ravioli ham and cheese	1600	1400	3.20	3.15	3.18	-0.06
	2313282	Parisian vegetables pan-fried	5600	6300	3.75	3.80	3.77	0.05
	2263508	Powdered eggs	720	740	2.86	2.87	2.86	0.01
	2263509	Cream puffs	245	500	2.39	2.70	2.54	0.31
	2281309	Pastry	110	80	2.04	1.90	1.97	-0.14
	2263507	Caramel pear cake	5 800	6 900	3.76	3.84	3.80	0.08
	2263523	Cod Accra	570	550	2.76	2.74	2.75	-0.02
	<b>Average difference of the category</b>							0.04
	<b>Standard deviation of differences</b>							0.26

RM: reference method  
AM: alternative method

## Appendix E - Relative trueness study - Statistical calculations

Feed ⑥	2263504	Cat food	1400	2300	3.15	3.36	3.25	0.22
	2263505	Dog food	500	300	2.70	2.48	2.59	-0.22
	2263502	Dog treats	500	800	2.70	2.90	2.80	0.20
	<b>Average difference of the category</b>							0.07
	<b>Standard deviation of differences</b>							0.25
	<b>Average difference all categories</b>							0.03
<b>Standard deviation of differences</b>								0.21

n = 50  
 $\beta$  = 95%  
 $T(0.025, 2.009575237)$

	Lower confidence limit	Upper confidence limit
	-0.39	0.45

### Results not used in the statistical interpretation

Cat.	#	Sample type	RM	AM	RM	AM	Mean	Difference
			CFU/g	CFU/g	log CFU/g	log CFU/g		
Meat products ①	2263499	Plain sausage	<10	30	0.00	1.48	0.74	1.48
	2263498	Raw chicken	<10	<10	0.00	0.00	0.00	0.00
	2263497	Breaded cutlet	10	<10	1.00	0.00	0.50	-1.00
	3363496	Brest of chicken	10	20	1.00	1.30	1.15	0.30
	2263495	Herb chipolata	30	20	1.48	1.30	1.39	-0.18
	2263544	Chicken garlic	>3 0000	>3 0000	5.70	5.70	5.70	0.00
	2281365	Turkey fat	<10	<10	0.00	0.00	0.00	0.00
	2281359	Minced tex mex poultry	<10	<10	0.00	0.00	0.00	0.00
Dairy products ②	2263662	Cooked roast pork	<10	<10	0.00	0.00	0.00	0.00
	2263493	Raw milk goat cheese "Chabis" fat 20%	20	<10	1.30	0.00	0.65	-1.30
	2263492	Raw milk	<10	<10	0.00	0.00	0.00	0.00
	2263491	Pasteurized milk cheese	10	<10	1.00	0.00	0.50	-1.00
	2281360	Fresh cream with raw milk	10	20	1.00	1.30	1.15	0.30
Seafood products ③	2281358	Pasteurized milk	40	20	1.60	1.30	1.45	-0.30
	2263490	Back saithe	<10	<10	0.00	0.00	0.00	0.00
	2263489	Smoked herring	<10	<10	0.00	0.00	0.00	0.00
	2263488	Smoked salmon	<10	<10	0.00	0.00	0.00	0.00
Composite foods ⑤	2281363	Smoked mackerels	<10	<10	0.00	0.00	0.00	0.00
	2263487	Tuna salad, tomatoes, corn, red beans	40	<10	1.60	0.00	0.80	-1.60
	2263486	Vegetarian salad	20	<10	1.30	0.00	0.65	-1.30
	2263485	Endive walnut pear salad	30	<10	1.48	0.00	0.74	-1.48
	2263484	Vegetables mixed with mayonnaise	<10	<10	0.00	0.00	0.00	0.00
	2263483	Strasbourg salad	<10	<10	0.00	0.00	0.00	0.00
	2263481	Tartiflette croissants	<10	<10	0.00	0.00	0.00	0.00
	2263480	Hachis Parmentier	70	20	1.85	1.30	1.57	-0.54
	2263479	Quich toasts	<10	<10	0.00	0.00	0.00	0.00
	2263478	Paris-Brest	<10	<10	0.00	0.00	0.00	0.00
	2281361	Pastry 3 chocolates	<10	<10	0.00	0.00	0.00	0.00
	2247843	Pastry	<10	<10	0.00	0.00	0.00	0.00
	2281362	Pearl pasta surimi and prawns	<10	<10	0.00	0.00	0.00	0.00
	2263665	Salad salmon tomatoes pasta potatoes	<10	70	0.00	1.85	0.92	1.85

RM: reference method  
AM: alternative method

**Appendix F**  
**Accuracy profil study - Raw results**

### ACCURACY PROFIL - Meat products

Matrix: ground beef

Strain: *Staphylococcus aureus* LBZ517

Enumeration of the microorganisms at 30°C - batch 1:  $2.5 \cdot 10^6$  CFU/g

Enumeration of the microorganisms at 30°C - batch 2:  $3.6 \cdot 10^6$  CFU/g

Level	Batch	R.	Reference method: ISO 6888-2					Alternative method: CHROMagar™ Staph aureus- Poured plate without remelting					Alternative method: CHROMagar™ Staph aureus - Poured plate with remelting				
			dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)
Low	Batch 1	R1	-1	32	-2	1	300	-1	26	-2	3	260	-1	28	-2	5	300
		R2	-1	39	-2	3	380	-1	30	-2	3	300	-1	31	-2	3	310
		R3	-1	19	-2	0	170	-1	21	-2	1	200	-1	17	-2	3	180
		R4	-1	18	-2	3	190	-1	23	-2	1	220	-1	14	-2	3	160
		R5	-1	23	-2	6	260	-1	24	-2	2	240	-1	20	-2	3	210
	Batch 2	R6	-1	35	-2	2	340	-1	35	-2	5	360	-1	28	-2	5	300
		R7	-1	31	-2	9	360	-1	31	-2	3	310	-1	29	-2	3	290
		R8	-1	14	-2	1	140	-1	28	-2	3	280	-1	18	-2	3	190
		R9	-1	25	-2	0	230	-1	13	-2	6	170	-1	24	-2	1	230
		R10	-1	28	-2	2	270	-1	24	-2	4	250	-1	20	-2	4	220
Medium	Batch 1	R11	-3	29	-4	2	28000	-3	23	-4	2	23000	-3	28	-4	2	27000
		R12	-3	32	-4	2	31000	-3	20	-4	2	20000	-3	18	-4	1	17000
		R13	-3	32	-4	1	30000	-3	30	-4	2	29000	-3	28	-4	2	27000
		R14	-3	34	-4	0	31000	-3	26	-4	1	24000	-3	26	-4	2	25000
		R15	-3	26	-4	1	24000	-3	22	-4	1	21000	-3	23	-4	2	23000
	Batch 2	R16	-3	27	-4	2	26000	-3	24	-4	2	24000	-3	27	-4	3	27000
		R17	-3	14	-4	1	14000	-3	16	-4	0	14000	-3	15	-4	1	14000
		R18	-3	16	-4	1	15000	-3	14	-4	1	14000	-3	16	-4	1	15000
		R19	-3	25	-4	2	24000	-3	20	-4	2	20000	-3	14	-4	2	14000
		R20	-3	30	-4	2	29000	-3	27	-4	2	26000	-3	26	-4	3	26000
Hight	Batch 1	R21	-4	32	-5	2	310000	-4	29	-5	3	290000	-4	32	-5	1	300000
		R22	-4	26	-5	1	240000	-4	27	-5	3	270000	-4	32	-5	2	310000
		R23	-4	40	-5	2	380000	-4	24	-5	1	230000	-4	21	-5	2	210000
		R24	-4	22	-5	1	210000	-4	25	-5	2	240000	-4	28	-5	2	270000
		R25	-4	29	-5	2	280000	-4	21	-5	2	210000	-4	28	-5	1	260000
	Batch 2	R26	-4	46	-5	5	460000	-4	18	-5	2	180000	-4	32	-5	3	320000
		R27	-4	56	-5	4	540000	-4	23	-5	2	230000	-4	26	-5	2	250000
		R28	-4	29	-5	3	290000	-4	37	-5	2	350000	-4	38	-5	3	370000
		R29	-4	44	-5	4	440000	-4	29	-5	2	280000	-4	36	-5	2	340000
		R30	-4	47	-5	4	460000	-4	33	-5	3	330000	-4	21	-5	1	210000

### ACCURACY PROFIL - Dairy products

Matrix: raw milk cheese      Strain: *Staphylococcus aureus* SCA003

Enumeration of the microorganisms at 30°C - batch 1: 1.7 10<sup>9</sup> CFU/g

Enumeration of the microorganisms at 30°C - batch 2: 1.7 10<sup>8</sup> CFU/g

Level	Batch	R.	Reference method: ISO 6888-2					Alternative method: CHROMagar™ Staph aureus- Poured plate without remelting					Alternative method: CHROMagar™ Staph aureus - Poured plate with remelting				
			dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)
Low	Batch 1	R31	-1	12	-2	1	120	-1	9	-2	0	90	-1	10	-2	1	100
		R32	-1	17	-2	2	170	-1	10	-2	1	100	-1	19	-2	3	200
		R33	-1	13	-2	1	130	-1	8	-2	0	80	-1	12	-2	1	120
		R34	-1	18	-2	1	170	-1	12	-2	1	120	-1	12	-2	1	120
		R35	-1	12	-2	1	120	-1	10	-2	1	100	-1	10	-2	1	100
	Batch 2	R36	-1	17	-2	3	180	-1	9	-2	0	90	-1	10	-2	0	90
		R37	-1	14	-2	1	140	-1	8	-2	0	80	-1	9	-2	0	90
		R38	-1	15	-2	1	150	-1	11	-2	0	100	-1	14	-2	1	140
		R39	-1	17	-2	1	160	-1	10	-2	0	90	-1	13	-2	0	120
		R40	-1	12	-2	1	120	-1	13	-2	1	130	-1	11	-2	0	100
Medium	Batch 1	R41	-3	7	-4	0	6400	-3	7	-4	1	7300	-3	9	-4	0	8200
		R42	-3	16	-4	0	14000	-3	9	-4	0	9000	-3	6	-4	0	5400
		R43	-3	10	-4	0	9100	-3	9	-4	0	8200	-3	7	-4	0	6400
		R44	-3	8	-4	0	7300	-3	11	-4	0	10000	-3	8	-4	1	8200
		R45	-3	12	-4	0	11000	-3	9	-4	1	9100	-3	9	-4	1	9100
	Batch 2	R46	-3	13	-4	0	12000	-3	8	-4	1	8200	-3	9	-4	0	8200
		R47	-3	7	-4	0	6400	-3	7	-4	1	7300	-3	11	-4	1	11000
		R48	-3	12	-4	2	13000	-3	10	-4	0	9100	-3	6	-4	0	5500
		R49	-3	9	-4	3	11000	-3	11	-4	0	10000	-3	9	-4	0	8200
		R50	-3	10	-4	0	9100	-3	8	-4	0	7300	-3	9	-4	0	8200
High	Batch 1	R51	-4	25	-5	0	230000	-4	21	-5	2	210000	-4	22	-5	1	210000
		R52	-4	27	-5	3	270000	-4	23	-5	2	230000	-4	27	-5	2	260000
		R53	-4	31	-5	3	310000	-4	32	-5	3	320000	-4	21	-5	0	190000
		R54	-4	28	-5	0	250000	-4	22	-5	0	200000	-4	25	-5	1	240000
		R55	-4	24	-5	2	240000	-4	29	-5	3	290000	-4	19	-5	1	180000
	Batch 2	R56	-4	26	-5	2	250000	-4	25	-5	2	240000	-4	24	-5	2	240000
		R57	-4	44	-5	6	450000	-4	27	-5	1	250000	-4	20	-5	1	190000
		R58	-4	39	-5	4	390000	-4	37	-5	3	360000	-4	32	-5	2	310000
		R59	-4	29	-5	3	290000	-4	36	-5	3	350000	-4	28	-5	1	260000
		R60	-4	43	-5	6	440000	-4	40	-5	3	390000	-4	23	-5	1	220000

### ACCURACY PROFIL - Composite foods

Matrix: Piémontaise

Strain: *Staphylococcus aureus* HBL504

Enumeration of the microorganisms at 30°C - batch 1:  $1.3 \cdot 10^5$  CFU/g

Enumeration of the microorganisms at 30°C - batch 2:  $3 \cdot 10^4$  CFU/g

Level	Batch	R.	Reference method: ISO 6888-2					Alternative method: CHROMagar™ Staph aureus- Poured plate without remelting					Alternative method: CHROMagar™ Staph aureus - Poured plate with remelting				
			dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)	dil 1	CFU	dil 2	CFU	Result (CFU/g)
Low	Batch 1	R61	-1	23	-2	3	240	-1	17	-2	1	160	-1	15	-2	4	170
		R62	-1	27	-2	3	270	-1	27	-2	2	260	-1	21	-2	2	210
		R63	-1	29	-2	3	290	-1	26	-2	3	260	-1	25	-2	4	260
		R64	-1	22	-2	0	200	-1	17	-2	3	180	-1	15	-2	1	140
		R65	-1	22	-2	0	200	-1	11	-2	3	130	-1	33	-2	1	310
	Batch 2	R66	-1	25	-2	6	280	-1	24	-2	1	230	-1	22	-2	4	240
		R67	-1	34	-2	3	340	-1	22	-2	4	240	-1	18	-2	2	180
		R68	-1	19	-2	1	180	-1	25	-2	3	260	-1	24	-2	5	260
		R69	-1	27	-2	6	300	-1	32	-2	1	300	-1	29	-2	2	280
		R70	-1	26	-2	4	270	-1	15	-2	3	160	-1	24	-2	2	240
Medium	Batch 1	R71	-3	16	-4	0	14000	-3	11	-4	0	10000	-3	9	-4	0	8100
		R72	-3	17	-4	1	16000	-3	11	-4	2	12000	-3	12	-4	5	15000
		R73	-3	29	-4	0	26000	-3	17	-4	1	16000	-3	9	-4	0	8100
		R74	-3	14	-4	1	14000	-3	13	-4	2	14000	-3	17	-4	1	16000
		R75	-3	13	-4	1	13000	-3	12	-4	1	12000	-3	12	-4	1	12000
	Batch 2	R76	-3	26	-4	1	24000	-3	15	-4	0	14000	-3	12	-4	1	12000
		R77	-3	16	-4	2	16000	-3	11	-4	0	10000	-3	13	-4	1	13000
		R78	-3	15	-4	0	14000	-3	17	-4	3	18000	-3	13	-4	3	14000
		R79	-3	14	-4	2	14000	-3	12	-4	0	11000	-3	8	-4	1	82000
		R80	-3	21	-4	3	22000	-3	16	-4	3	17000	-3	10	-4	2	11000
High	Batch 1	R81	-4	38	-5	4	380000	-4	39	-5	3	380000	-4	36	-5	3	350000
		R82	-4	27	-5	1	250000	-4	30	-5	2	290000	-4	37	-5	4	370000
		R83	-4	41	-5	5	420000	-4	28	-5	3	280000	-4	30	-5	3	300000
		R84	-4	47	-5	7	490000	-4	29	-5	2	280000	-4	31	-5	1	290000
		R85	-4	39	-5	4	390000	-4	42	-5	6	440000	-4	44	-5	4	440000
	Batch 2	R86	-4	38	-5	4	380000	-4	31	-5	2	300000	-4	34	-5	2	330000
		R87	-4	44	-5	5	440000	-4	39	-5	6	410000	-4	36	-5	2	340000
		R88	-4	37	-5	3	360000	-4	30	-5	1	280000	-4	35	-5	5	360000
		R89	-4	32	-5	2	310000	-4	33	-5	3	330000	-4	30	-5	1	280000
		R90	-4	48	-5	7	500000	-4	39	-5	2	370000	-4	42	-5	1	390000