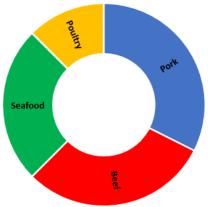
Microbial Testing of a Hygiene Material in Food Production.

Abstract:

Top Dog collected aprons from the Pork, Beef, Poultry and Seafood industries. The aprons were cleaned by user prior to collection. BioFoodTech was tasked with testing the aprons for the presence or absence of *Listeria* ssp., *Salmonella* spp. and *E-coli* 0157:H7/NM



Samples by Industry



Salmonella spp./ Listeria spp./ E-coli 0-157: H7/ NM



Results:

The results obtained from BioFoodTech's analysis indicated that none of the sampled aprons showed the presence of the targeted pathogens.

Disclaimer:

BioFoodTech makes no marketable claim to the data presented. BioFoodTech accepts responsibility for the accuracy of the testing conducted in accordance to its internal protocols.

BioFoodTech is an independent agent with no affirmation to Top Dog.



Sampling:

Top Dog sampled aprons from various usage periods. Some being unused and others used for up to a maximum of 20 weeks/140 days. The aprons were individually sealed in sterile bags without any information about their specific use and sent to BioFoodTech for analysis.

While some of the aprons showed signs of prolonged use, the surface integrity of all 40 samples remained intact.

Cleaning:

The 40 aprons underwent an average of 35 cleanings, with a maximum of 100 cleaning cycles.

Typically, the cleaning protocol involved: initial rinsing with water, cleaning with chemicals, then sanitization, and a final rinse before the drying process. Certain protocols required two chemical washes before rinsing and sanitizing. The samples were either airdried or tumble-dried after cleaning.





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-11770 / 10
Telephone		Date Received / Date Started	28-Sep-2023 / 28-Sep-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	01-Oct-2023 / 01-Oct-2023
Client Contact	Heidi Jul Taulborg	Methods Used	MFHPB-10 MFLP- 15, 29

			Qualitative Analysis Detected / Not Detected		
Sample	Code	Sample #	E.coli O157:H7/NM	Saimoneila spp.	Listeria spp.
Sponge	Apron I (swabbed residue side)	23-11770	Not Detected	Not Detected	Not Detected
Sponge	Apron 2 (swabbed both sides) (apron very worn & punctured in areas)	23-11771	Not Detected	Not Detected	Not Detected
Sponge	Apron 3 (swabbed both sides)	23-11772	Not Detected	Not Detected	Not Detected
Sponge	Apron 4 (swabbed residue side)	23-11773	Not Detected	Not Detected	Not Detected
Sponge	Apron 5 (swabbed front clip side)	23-11774	Not Detected	Not Detected	Not Detected

Vanersa Deale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 3, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3 Pa

Page 1 of 3





CERTIFICATE OF ANALYSIS

Client Top Dog Manufacturing		t Top Dog Manufacturing		ring Client ID #		CA 223031	
Clie	ent Address	2505 Rte. 2 Kensington, PE C0E	8 1 M0	F	ile # / # of Samples	23-11770 / 10	
Tele	ephone			Date Rece	eived / Date Started	28-Sep-2023 / 28-Sep-2023	3
Fax/email hjultaulborg@biofoodtech.ca Date Completed / Date Reported		ted / Date Reported	01-Oct-2023 / 01-Oct-2023	3			
Clie	lient Contact Heidi Jul Taulborg Methods Used		MFHPB-10 MFLP- 15, 29				
					Qualitative Analysi Detected / Not Detected		
	Sample	Code	Sample #	E.coli O157:H7/NM	Salmonella spp.	Listeria spp	
	Sponge	Apron 6 (swabbed both sides)	23-11775	Not Detected	Not Detected	Not Detected	
	Sponge	Apron 7 (swabbed both sides)	23-11776	Not Detected	Not Detected	Not Detected	
	Sponge	Apron 8 (swabbed residue side)	23-11777	Not Detected	Not Detected	Not Detected	
	Sponge	Apron 9 (swabbed both sides) (apron very worn and punctured in areas)	23-11778	Not Detected	Not Detected	Not Detected	[
	Sponge	Apron 10 (swabbed both sides)	23-11779	Not Detected	Not Detected	Not Detected	

anerse Reale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-11770 / 10
Telephone		Date Received / Date Started	28-Sep-2023 / 28-Sep-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	01-Oct-2023 / 01-Oct-2023
Client Contact	Heidi Jul Taulborg	 Methods Used	MFHPB-10 MFLP- 15, 29

QUALITY DATA

Method	Method Reference
<i>E.coli</i> O157:H7/NM	MFHPB-10
Salmonella spp.	MFLP-29
Listeria spp.	MFLP-15

ursa Deale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 3, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3

Page 3 of 3

St.C. Acceptor

BIOFOODTECH - MICROBIOLOGY LABORATORY 101 BELVEDERE AVENUE, CHARLOTTETOWN, PEI, C1A 7N8 TEL: (902) 368-5937 FAX: (902) 368-5549



CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-11899 / 10
Telephone		Date Received / Date Started	05-Oct-2023 / 05-Oct-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	11-Oct-2023 / 11-Oct-2023
Client Contact	Heidi Jul Taulborg	Methods Used	MFHPB-10 MFLP- 15, 29

				Qualitative Analysis Detected / Not Detected		
Sample	Code	Sample #	<i>E.coli</i> O157:H7/NM	Salmonella spp.	Listeria spp.	
Sponge	Apron 11	23-11899	Not Detected	Not Detected	Not Detected	
Sponge	Apron 12	23-11900	Not Detected	Not Detected	Not Detected	
Sponge	Apron 13	23-11901	Not Detected	Not Detected	Not Detected	
Sponge	Apron 14	23-11902	Not Detected	Not Detected	Not Detected	
Sponge	Apron 15	23-11903	Not Detected	Not Detected	Not Detected	

Yanersa Deale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 11, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3 Page 1 of 3





CERTIFICATE OF ANALYSIS

Clie	Client Top Dog Manufacturing		Top Dog Manufacturing Client ID #		Client ID #	CA 223031
Clie	Client Address 2505 Rte. 2 Kensington, PE C0B 1M0		F	ile # / # of Samples	23-11899 / 10	
Tele	Telephone		Date Rec	eived / Date Started	05-Oct-2023 / 05-Oct-2023	
Fax/email <u>hjultaulborg@biofoodtech.ca</u>		Date Completed / Date Reported		11-Oct-2023 / 11-Oct-2023		
Clie	ent Contact	Heidi Jul Taulborg	Heidi Inl Taulborg		MFHPB-10 MFLP- 15, 29	
					Qualitative Analysis Detected / Not Detected	
	Sample	Code	Sample #	<i>E.coli</i> O157:H7/NM	Salmonella spp.	Listeria spp
	Sponge	Apron 16	23-11904	Not Detected	Not Detected	Not Detected
	Sponge	Apron 17	23-11905	Not Detected	Not Detected	Not Detected
	Sponge	Apron 18	23-11906	Not Detected	Not Detected	Not Detected
	Sponge	Apron 19	23-11907	Not Detected	Not Detected	Not Detected

23-11908

Not Detected

Not Detected

Yanerse Deale

Sponge

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 11, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

Apron 20

Not Detected





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	_ Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-11899 / 10
Telephone		Date Received / Date Started	05-Oct-2023 / 05-Oct-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	11-Oct-2023 / 11-Oct-2023
Client Contact	Heidi Jul Taulborg	 Methods Used	MFHPB-10 MFLP- 15, 29

QUALITY DATA

Method	Method Reference
E.coli O157:H7/NM	MFHPB-10
Salmonella spp.	MFLP-29
Listeria spp.	MFLP-15

nersa Deale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 11, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3 Page 3 of 3



CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-12271 / 9
Telephone		Date Received / Date Started	12-Oct-2023 / 12-Oct-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	15-Oct-2023 / 16-Oct-2023
Client Contact	Heidi Jul Taulborg	— Methods Used	MFHPB-10 MFLP- 15, 29

				Qualitative Analysis Detected / Not Detected	
Sample	Code	Sample #	<i>E.coli</i> O157:H7/NM	Salmonella spp.	Listeria spp.
Sponge	Apron 21	23-12271	Not Detected	Not Detected	Not Detected
Sponge	Apron 22	23-12272	Not Detected	Not Detected	Not Detected
Sponge	Apron 23	23-12273	Not Detected	Not Detected	Not Detected
Sponge	Apron 24	23-12274	Not Detected	Not Detected	Not Detected
Sponge	Apron 25	23-12275	Not Detected	Not Detected	Not Detected
Sponge	Apron 26	23-12276	Not Detected	Not Detected	Not Detected
Sponge	Apron 27	23-12277	Not Detected	Not Detected	Not Detected

1 Jeale

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 18, 2023

This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufac	turing		Client ID #	CA 223031	
Client Address	2505 Rte. 2 Kensington, I	PE C0B 1M0	F	ile # / # of Samples	23-12271 / 9	
Telephone	· · ·		Date Rece	eived / Date Started	12-Oct-2023 / 12-Oct-202	:3
Fax/email	hjultaulborg@biofoo	dtech.ca	Date Complet	ted / Date Reported	15-Oct-2023 / 16-Oct-202	:3
Client Contact	Heidi Jul Taulb	org		MFHPB-10 MFLP- 15, 29		
				Qualitative Analysis Detected / Not Detected]
Sample	Code	Sample #	E.coli O157:H7/NM	Salmonella spp.	<i>Listeria</i> spp	
Sponge	Apron 28	23-12278	Not Detected	Not Detected	Not Detected	1
Sponge	Apron 29	23-12279	Not Detected	Not Detected	Not Detected	1

QUALITY DATA

Method	Method Reference
<i>E.coli</i> O157:H7/NM	MFHPB-10
Salmonella spp.	MFLP-29
Listeria spp.	MFLP-15

1 Jea

Vanessa Neale, B.Sc. Microbiology Laboratory Manager





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-12989 / 11
Telephone		Date Received / Date Started	26-Oct-2023 / 26-Oct-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	29-Oct-2023 / 30-Oct-2023
Client Contact	Heidi Jul Taulborg		MFHPB-10 MFLP- 15, 29

			Qualitative Analysis Detected / Not Detected					
Sample	Code	Sample #	E.coli O157:H7/NM	Salmonella spp.	Listeria spp.			
Sponge	Apron 30	Apron 30 23-12989		Not Detected	Not Detected			
Sponge	Apron 31 23-1		Not Detected	Not Detected Not Detected				
Sponge	Apron 32	23-12991	Not Detected Not Detected		Not Detected			
Sponge	Apron 33	23-12992	Not Detected	Not Detected	Not Detected			
Sponge	Apron 34	23-12993	Not Detected	Not Detected	Not Detected			
Sponge	Apron 35	23-12994	Not Detected	Not Detected	Not Detected			
Sponge	Apron 36	23-12995	Not Detected	Not Detected	Not Detected			

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 30, 2023 This report must be reproduced in full unless prior written approval by the Bio FoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3

Page 1 of 3



Sponge

BIOFOODTECH - MICROBIOLOGY LABORATORY 101 BELVEDERE AVENUE, CHARLOTTETOWN, PEI, C1A 7N8 TEL: (902) 368-5937 FAX: (902) 368-5549



CERTIFICATE OF ANALYSIS

Clie	nt	Top Dog Manufacturing			Client ID #	CA 223031
Clie	nt Address	2505 Rte. 2 Kensington, PE C0B	1 M0	F	ile # / # of Samples	23-12989 / 11
Tele	phone			Date Rec	eived / Date Started	26-Oct-2023 / 26-Oct-2023
Fax	t/email hjultaulborg@biofoodtech.ca			Date Comple	ted / Date Reported	29-Oct-2023 / 30-Oct-2023
Client Contact		Heidi Jul Taulborg			Methods Used	MFHPB-10 MFLP- 15, 29
					Qualitative Analysis Detected / Not Detected	
	Sample	Code	Sample #	E.coli O157:H7/NM	Salmonella spp.	<i>Listeria</i> spp
	Sponge	Apron 37	23-12996	Not Detected	Not Detected	Not Detected
	Sponge	Apron 38	23-12997	Not Detected	Not Detected	Not Detected
	Sponge	Apron 39	23-12998	Not Detected	Not Detected	Not Detected
	1					

23-12999

Not Detected

Not Detected

nerra Idea

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Apron 40

Not Detected





CERTIFICATE OF ANALYSIS

Client	Top Dog Manufacturing	Client ID #	CA 223031
Client Address	2505 Rte. 2 Kensington, PE C0B 1M0	File # / # of Samples	23-12989 / 11
Telephone		Date Received / Date Started	26-Oct-2023 / 26-Oct-2023
Fax/email	hjultaulborg@biofoodtech.ca	Date Completed / Date Reported	29-Oct-2023 / 30-Oct-2023
Client Contact	Heidi Jul Taulborg	Methods Used	MFHPB-10 MFLP- 15, 29

QUALITY DATA

Method	Method Reference
<i>E.coli</i> O157:H7/NM	MFHPB-10
Salmonella spp.	MFLP-29
Listeria spp.	MFLP-15

Vanessa Neale, B.Sc. Microbiology Laboratory Manager

Date printed: October 30, 2023 This report must be reproduced in full unless prior written approval by the BioFoodTech Microbiology Laboratory The results reported herein are valid only for the samples specified and as tested according to the methods specified

M-110b VS#3

Page 3 of 3

Apron History

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Industry/ Location	Pork processor	Beef processor	Seafood processor** w	Pork processor	Pork Processor**	Beef processor	Beef processor**	Pork processor	Beef processor	Seafood processor*: b
Age of apron	20 weeks	9 weeks	New	9 weeks	New	15 weeks	New	7 weeks	8 weeks	New
Number Of washes	100	45	0	45	0	75	0	35	40	0
Washing process	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	N/A	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A
Drying time	Tumble dry	Hang to dry	N/A	Tumble dry	N/A	Hang to dry	N/A	Tumble dry	Hang to dry	N/A

Apron History

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Industry/ Location	Beef processor	Pork Processor**	Seafood processor** b	Pork processor	Seafood processor** w	Beef processor	Pork processor	beef processor	Beef processor**	Pork processor
Age of apron	12 weeks	New	New	10 weeks	New	14 weeks	6 weeks	10 weeks	New	5 weeks
Number Of washes	60	0	0	50	0	70	30	50	0	25
Washing process	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A	N/A	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	N/A	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A	Dip and soa using Foam Force LP2 cleaner. Rinse with fresh water Washed a second time using fresh water and sanitizer then rinsec again.
Drying	Hang to dry	N/A	N/A	Tumble dry	N/A	Hang to dry	Tumble dry	Hang to dry	N/A	Tumble dr
time										

Industry/ Location	Beef processor**	Pork processor	Beef processor	Pork processor	Beef processor	Beef processor	Pork Processor**	Pork processor	Pork processor	Seafood processor w
Age of apron	New	7 weeks	13 weeks	10 weeks	4 weeks	5 weeks	New	10 weeks	4 weeks	12 weeks
Number Of washes	0	35	65	50	20	25	0	30	20	60
Washing process	N/A	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	Spray down with hot water after use. Washed with chemical sanitizer in water and rinsed with fresh water	N/A	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Dip and soak using Foam Force LP2 cleaner. Rinse with fresh water. Washed a second time using fresh water and sanitizer then rinsed again.	Washed by hand using a mild soap called Cristal and rinsed. Then sanitized using a chemical called Germac.
Drying time	N/A #31	Tumble dry #32	Hang to dry #33	Tumble dry #34	Hang to dry #35	Hang to dry #36	N/A #37	Tumble dry #38	Tumble dry #39	Hang to dry #40

Apron History

Industry/ Location	Chicken processor	Seafood processor w	Chicken processor**	Seafood processor w	Chicken processor	Chicken processor	Seafood processor w	Seafood processor** b	Seafood processor** w	Chicken processor
Age of apron	18 weeks	6 weeks	New	20 weeks	16 weeks	9 weeks	7 weeks	New	New	11 weeks
Number Of washes	90	30	N/A	100	80	45	35	0	0	55
Washing process	Washed in machine with detergent then rinsed	Washed by hand using a mild soap called Cristal and rinsed. Then sanitized using a chemical called Germac.	N/A	Washed by hand using a mild soap called Cristal and rinsed. Then sanitized using a chemical called Germac.	Washed in machine with detergent then rinsed	Washed in machine with detergent then rinsed	Washed by hand using a mild soap called Cristal and rinsed. Then sanitized using a chemical called Germac.	N/A	N/A	Washed in machine with detergent then rinsed
Drying time	Tumble dry on low then folded and stored	Hang to dry	N/A	Hang to dry	Tumble dry on low then folded and stored	Tumble dry on low then folded and stored	Hang to dry	N/A	N/A	Tumble dry on low then folded and stored