



Aegis Microbial Shield®

Surface Protection Application

Ronald McDonald House

Vancouver, BC

Spring 2015



Executive Summary:

During the winter of 2015, Protect Technologies approached the management of Ronald McDonald House in Vancouver about the possibility of applying the Aegis Microbe Shield® to high touch, common area surfaces with the goal of protecting treated surfaces from the growth of bacteria.

Process:

1. Prior to the cleaning and application of the Aegis Microbe Shield®, microbiological swabs were taken of high touch surfaces of the following:
 - Refrigerator door handle
 - LEGO room table top
 - Elevator buttons
 - Washroom surfaces - Mountain Washroom

Samples were sealed and taken to MBL Laboratories in Burnaby, BC. Results showed positive for the growth of microorganisms on all surfaces tested, except for refrigerator door handles.

2. Cleaning personnel cleaned the identified high touch surfaces with common daily cleaners to rid surfaces of any residual dirt that could come between the Aegis Microbe Shield® and the treated surface. The purpose of this step is to enable optimal binding of the Shield to the surfaces.

Immediately after this spot cleaning, Protect Inc. and trained applicators of the Aegis Microbe Shield® applied the Shield with a “spray and wipe” technique.

Approximately 3 weeks later, microbiological swabs were re-done for treated surfaces in the exact same locations as were tested prior to the application of the Aegis Microbe Shield®. Results showed zero growth on the refrigerator door handle, the elevator buttons, and the Lego room table top. Surprisingly, there was an extraordinarily high recorded growth of microbes from the treated washroom.

About a week later, repeat microbiologic swab testing of individual touch points within the Mountain washroom was undertaken. These included:

- Toilet flush handle
- Mobility hand grip bars
- Soap dispenser
- Door handle

This time all four locations produced a result of zero or no growth based upon microbial swab surface tests for growth of microorganisms.

Findings:

- There are many sites within RMH where microorganisms can be found as evidenced by testing confirmed by a third-party lab.
- After the application of the Aegis Microbe Shield®, growth of microorganisms was prevented as confirmed by the same lab. The exception was an extremely high bacterial count on a surface of the Mountain washroom.
- To re-test and confirm the elevated count, a second test was performed where surfaces within the Mountain washroom were re-tested. Upon re-test no growth was found. It can therefore be surmised that the elevated test result seen on the first follow up test must have been the result of a specific guest depositing a heavy load of bacteria on a surface, and that the microbiologic swab test was conducted almost immediately after the deposition of bacteria.
- Normal household hygiene of the bathroom along with the application of the Aegis Microbe Shield® stopped the growth of microbes within the bathroom as evidenced by the third test.
- The Aegis Microbe Shield® prevented the growth of microbes on all treated surfaces within RMH.

Detailed Test Results of Swab Testing Various Surfaces:

Pre- Application Results:

Initial test prior to cleaning and application of Aegis Microbe Shield® indicate bacteria were identified on all common areas except the refrigerator handles. This may be due to the fact that the kitchen has readily available sanitizers and disinfectants for guests to use. Also, both RMH staff as well as volunteers routinely clean obvious surfaces such as the refrigerator door handles. This extra level of cleaning may be the cause of zero growth on the tested surface.

On the other hand, routine building hygiene of common surfaces including elevator knobs, washroom surfaces, and LEGO play areas was not enough to prevent the growth of microorganisms.



1020 Brevik Place, Unit 1A
Mississauga, ON L4W 4N7
905-290-9101

4475 Wayburne Dr., Suite 204
Burnaby, BC V5G 4X4
604-435-6555/604-484-9114
info@moldbacteria.com
www.moldbacteria.com

More Than Just Lab Results

Laboratory Analytical Results

CONTACT NAME: Greg Kochuk **PROJECT NO.:** 1 **LAB REFERENCE:** MBC3062BAC
COMPANY NAME: Pacific Mold Prevention Technologies Inc. **TYPE OF SAMPLES:** Swab **ANALYST:** Georget Shamoon, PhD.

Client's Sample ID Number	Lab Sample ID Number	Sample Description or Location Where Collected	Volume plated (mL)	Dilution plated	Raw Count	CFU/swab
1	MBC3062BAC-1	Elevator	0.1	1:10	2	2.0 x 10 ²
2	MBC3062BAC-2	Forest Kitchen	1	1:10	No growth.	<10.0
3	MBC3062BAC-3	Restroom	0.1	1:10	26	2.6 x 10 ³
4	MBC3062BAC-4	Lego Room	1	1:10	20	2.0 x 10 ²

Notes:
A. The result(s) relate only to the sample(s) tested.
B. This test report shall not be reproduced except in full, without written approval of Mold & Bacteria Consulting Laboratories (MBL) Inc.

Post Application Results:

Approximately 3 weeks post application, on a day unannounced to cleaning staff, the same surfaces tested prior to the application of the Aegis Microbe Shield® were re-tested using the same technique with the same independent laboratory. Results were as expected, no growth post application of the Shield, except for an extraordinarily high level of growth as identified by swabbing the surfaces of the Mountain washroom. At this washroom site, microbial growth was recorded as over 3 times the level of the original test.

Was this result an outlier? Unusual? To determine the answer a re-test of the washroom was requested.



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Laboratory Analytical Results

CONTACT NAME:	Greg Kochuk	PROJECT NO.:	RMH #2	LAB REFERENCE:	MBC3135BAC
COMPANY NAME:	Pacific Mold Prevention Technologies Inc.	TYPE OF SAMPLES:	Swab	ANALYST:	Kabir Lamsal, PhD.

Client's Sample ID Number	Lab Sample ID Number	Sample Description or Location Where Collected	Volume plated (mL)	Dilution plated	Bacterial Raw Colony Count	Total Bacteria Count: Colony Forming Units (CFU) per swab
1	MBC3135BAC-1	RMH Fridge	1.0	1:10	No growth.	<10.0
2	MBC3135BAC-2	RMH Lego	1.0	1:10	No growth.	<10.0
3	MBC3135BAC-3	RMH Elevator	1.0	1:10	No growth.	<10.0
4	MBC3135BAC-4	RMH Washroom	0.1	1:10	85.0	8.5 x 10 ³

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References:

- 1- Color Atlas and Textbook of Diagnostic Microbiology: Washington C. Winn, Jr. (Editor), Stephen D. Allen (Editor), William M.Janda (Editor), Elmer W. Koneman (Editor), Gary W. Procop (Editor), Paul C. Schreckenberger (Editor), Gail L. Woods (Editor). Lippincott Williams & Wilkins Sixth Edition, 2008.
- 2- Bergey's Manual of Determinative Bacteriology: John G. Holt (Editor), Noel R. Krieg (Editor), Peter H.A. Sneath (Editor), James T.Staley (Editor), Stanley T. Williams (Editor). Lippincott Williams & Wilkins Ninth Edition, 1994.

Re-test of Mountain Washroom Surfaces:

In the previous test, four sites were swabbed together with the expectation that as per usual, after an application of the Aegis Microbe Shield® no growth would be seen. This time the individual sites were swabbed uniquely and samples sent to the lab for analysis of bacterial growth. This time no organisms were able to be grown from the sites tested within the Mountain washroom.



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More Than Just Lab Results

Laboratory Analytical Results

CONTACT NAME:	Greg Kochuk	PROJECT NO.:	RMH Re- Do	LAB REFERENCE:	MBC3141BAC
COMPANY NAME:	Pacific Mold Prevention Technologies Inc.	TYPE OF SAMPLES:	Swab	ANALYST:	Rakhi Anish, MSc.

Client's Sample ID Number	Lab Sample ID Number	Sample Description or Location Where Collected	Volume plated (mL)	Dilution plated	Bacterial Raw Colony Count	Total Bacteria Count: Colony Forming Units (CFU) per swab
1	MBC3141BAC- 1	Door Handle	1.0	1:10	No growth.	<10.0
2	MBC3141BAC- 2	Hand Rail	1.0	1:10	No growth.	<10.0
3	MBC3141BAC- 3	Toilet Handle	1.0	1:10	No growth.	<10.0
4	MBC3141BAC- 4	Soap Dispenser	1.0	1:10	No growth.	<10.0

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Discussion:

Microbial contamination of high touch surfaces is easily accomplished, even with high quality custodial hygiene of common high touch surfaces. This is very important as microbes can happily grow on surfaces for hours if not days depending upon the strain of microbe deposited.

The application of the Aegis Microbe Shield® was able to stop the growth of microbes on surfaces that were cleaned and then had the Shield applied. Where there is a desire to break the chain of person-to-surface-to-person transmission of microbes, the application of the Aegis Microbe Shield® is a strategy proven to be effective at stopping the growth of microbes on high touch, common, surfaces of RMH.

Protect Inc. was happy to provide the technology and the personnel to protect these surfaces and looks forward to providing this service as a yearly treatment to RMH Vancouver.