

METHODOLOGY SUMMARY (FOR PROGRAM)

EPSF: J-00319914

CLIENT: Falcon Plastics

STUDY PURPOSE: Flooring cleanability

SAMPLE DESCRIPTION:

- Lab generated samples:
 - Concrete carriers (0.5 x 2 inches)
 - Life Floor carriers (0.5 x 2 inches, with seam, backing, and a washer attached to the bottom on the backing)

SAMPLE HANDLING:

- Test material sterilization:
 - Concrete carriers were oven sterilized at $180 \pm 10^{\circ}\text{C}$ for ≥ 120 minutes.
 - Life Floor carriers were soaked for 1-2 hours in 70 to 95% isopropyl alcohol then dried in sterile plastic Petri dishes in a biosafety cabinet (BSC) and incubated overnight at $65 \pm 5^{\circ}\text{C}$.

TEST METHOD AND REFERENCE DOCUMENTS:

- No contract available
- ISO/TS 15883-5
- Model Aquatic Health Code 2018
- ASTM E1153-14: Standard test method for efficacy of sanitizers recommended for inanimate, hard, nonporous, non-food contact surfaces

EXPERIMENTAL SUMMARY:

Challenge microorganism(s):

- *Enterococcus faecium* ATCC 6569
- *Pseudomonas aeruginosa* ATCC 27313

Test soil preparation:

- Based on ISO/TS 15883-5, Annex H with the following modifications:
 - Test organism culture preparation was performed per NSF's standard procedures
 - Composition of soil prior to the addition of bacterial suspension (prepared in deionized water):
 - Mucin 10.0 g/L
 - Corn Starch 33.3 g/L
 - Bovine Serum Albumin 6.0 g/L
 - Soil preparation procedure:
 - 1.5 ± 0.015 g mucin was dissolved into 90 mL deionized water by boiling.
 - 5 ± 0.05 g corn starch was suspended in 10 mL deionized water, added to 90 mL hot mucin solution, mixed until combined, autoclaved-sterilized (121°C for 15 minutes), and allowed to cool to temperature below 60°C .
 - 0.9 ± 0.009 g bovine serum albumin was dissolved in 50 mL water, filter sterilized through a $0.45 \mu\text{m}$ pore size membrane filter, and combined with the cooled mucin-corn starch mixture.
 - Sterile soil shelf life has a 1 month expiration when stored at $7 - 15^{\circ}\text{C}$

Inoculum preparation

- 0.1 mL of culture from a freezer vial was passed into 10 mL Tryptic Soy Broth (TSB). Culture from TSB was transferred onto Tryptic Soy Agar (TSA) slants. All incubation conditions were $35.0 \pm 1.0^{\circ}\text{C}$ for 18 – 24 hours. Slants were harvested with Sterile Buffered Dilution Water (SBDW).

Spike preparation and carrier inoculation:

- 1.8 mL of soil was spiked with 0.2 mL of each culture and briefly vortexed. Each carrier was inoculated in 3 different areas, including the seam on Life Floor carriers, with a 0.01 mL spike preparation per area and was dried for ≤ 60 minutes in BSC.

Carrier count:

- Inoculated and bleach-treated carriers: $n = 5$ per carrier type
- Inoculated and water-treated carriers: $n = 3$ per carrier type
- Un-inoculated un-treated carrier: $n = 1$ per carrier type
 - To confirm sterility of carriers

Carrier treatment:

- Each inoculated and dried carrier was placed in a sterile jar and submerged in 200 mL of 10% (v/v) household bleach solution for 20 ± 0.5 minutes. Bleach solution was prepared with filter-sterilized dechlorinated water and used on the same day.
- Control carriers were treated with filter-sterilized dechlorinated water for 20 ± 0.5 minutes.
- After the required contact time 0.8 L Lethen broth containing 2.5g/L of sodium thiosulfate was added to each test jar.
- Each jar was placed in sonicating water bath at 35 kHz for 120 ± 5 seconds to elute.

Dilution and plating scheme:

- Carrier eluents were shaken by hand 10 times in arc motion, serially diluted in SBDW, pour plated in duplicate and incubated for 24 ± 2 hours at $35 \pm 1^\circ\text{C}$.

DATA ANALYSIS/REPORTING:

Calculations:

- The eluent density (CFU/mL) for each eluent sample was calculated.
- The carrier density (CFU/carrier) for each carrier was calculated.
- The geometric mean value (CFU/carrier) was calculated for control and treated test carriers.
- Percent reduction was calculated according to ASTM E1153-14.

- $\% \text{ reduction} = \frac{(a - b) \times 100}{a}$

- $a =$ geometric mean of control carrier density
- $b =$ geometric mean of treated test carrier density

Job #	J-00319914	
Data entry	20181218	BK
Peer review	20181218	EB
Report Review	20190315	DF

LIFE FLOOR MATERIAL

<i>E. faecium</i> ATCC 6569		Carrier eluent density (CFU/mL)	Carrier density (CFU/carrier)	Geomean (CFU/carrier)	% Reduction
Control Carriers	1	1.13E+04	1.13E+07	1.16E+07	
	2	1.42E+04	1.42E+07		
	3	9.75E+03	9.75E+06		
Test Carriers	1	< 1.00E+00	< 1.00E+03	< 1.00E+03	> 99.9%
	2	< 1.00E+00	< 1.00E+03		
	3	< 1.00E+00	< 1.00E+03		
	4	1.00E+00	1.00E+03		
	5	< 1.00E+00	< 1.00E+03		

<i>P. aeruginosa</i> ATCC 27131		Carrier eluent density (CFU/mL)	Carrier density (CFU/carrier)	Geomean (CFU/carrier)	% Reduction
Control Carriers	1	1.96E+05	1.96E+08	1.36E+08	
	2	1.37E+05	1.37E+08		
	3	9.30E+04	9.30E+07		
Test Carriers	1	2.00E+00	2.00E+03	< 1.19E+03	> 99.9%
	2	1.00E+00	1.00E+03		
	3	< 1.00E+00	< 1.00E+03		
	4	1.00E+00	1.00E+03		

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<i>E. faecium</i> ATCC 6569		Carrier eluent density (CFU/mL)	Carrier density (CFU/carrier)	Geomean (CFU/carrier)	% Reduction
Control Carriers	1	7.50E+03	7.500E+06	1.08E+07	
	2	1.03E+04	1.030E+07		
	3	1.63E+04	1.625E+07		
Test Carriers	1	< 1.00E+00	< 1.00E+03	< 1.00E+03	> 99.9%
	2	< 1.00E+00	< 1.00E+03		
	3	< 1.00E+00	< 1.00E+03		
	4	< 1.00E+00	< 1.00E+03		
	5	< 1.00E+00	< 1.00E+03		

<i>P. aeruginosa</i> ATCC 27131		Carrier eluent density (CFU/mL)	Carrier density (CFU/carrier)	Geomean (CFU/carrier)	% Reduction
Control Carriers	1	1.40E+04	1.40E+07	1.56E+07	
	2	1.63E+04	1.63E+07		
	3	1.69E+04	1.69E+07		
Test Carriers	1	3.00E+00	3.00E+03	< 1.35E+03	> 99.9%
	2	< 1.00E+00	< 1.00E+03		
	3	1.00E+00	1.00E+03		
	4	1.00E+00	1.00E+03		
	5	1.50E+00	1.50E+03		



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605 7th Street SW
Madison SD 57042
United States

Result	Complete	Report Date	15-MAR-2019
Customer Name	Lifefloor		
Tested To	- NSF/ANSI 50		
Description	Life Floor		
Trade Designation	Life Floor		
Test Type	Test Only		
Job Number	J-00319914		
Project Number	W0524577		
Project Manager	Sandra Wagner		

Thank you for having your product tested by NSF International.

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization 
Robin Bechanko - Manager, Microbiology Laboratory

Date 15-MAR-2019

General Information

Standard: - NSF/ANSI 50

Performance Standard: NSF 50

Trade Designation/Model Number: Life Floor

Sample Id: **S-0001566691**

Description: LifeFloor - MD

Sampled Date: 01/30/2019

Received Date: 01/30/2019

Testing Parameter	Result	Units
Microbiology Lab		
* General, non-specific testcode for non-certification work - Microbiology		
Test Result:	COMPLETE	

Testing Laboratories:

	Id	Address
All work performed at: →	NSF_AA	NSF International 789 N. Dixboro Road Ann Arbor MI 48105

References to Testing Procedures:

NSF Reference	Parameter / Test Description
M0000	* General, non-specific testcode for non-certification work - Microbiology Lab

Test descriptions preceded by an asterisk "*" indicate that testing has been performed per NSF International requirements but is not within its scope of accreditation.