Project: Validation of microSURE™ Performance
Client: Tadawi Medical Suppliers Est.
Date of Submission: (28/02/2021)

ABSTRACT

A disinfectant validation study to determine if **MICROSURE™ Surface Sanitizer** should be considered as a reliable solution that is able demonstrate residual presence on various treated surfaces after application and repetitive, forced abrasion. The procedure conducted and the investigation completed for this study to confirm if the solution is sufficient and effective for reduction of viable microorganisms after surface abrasion, implying a long-lasting/residual protection test.

Introduction

Disinfectant validation study

- The surfaces utilized for the validation **of MICROSURE™ Surface Sanitizer** were glass, MDF, leather & cotton fabric with specific special precautions and requirements to construct a representation and simulation of several surfaces in order to represent a 'real world environment' that can be applicable to reference for any object or material.

- The surfaces were challenged with 10^5 of culture (bacterial suspension).
  - Gram positive bacteria (Staphylococcus aureus)

- **MICROSURE™ Surface Sanitizer** solution usage:
  Sprayed the solution on cleaned slides and applied different types of surface abrasions.

- The bacterial suspension was spread evenly over the treatment area with diminutions 40cm*20cm size.

- By aseptically procedure the number of surviving organisms is enumerated and percent reduction value is calculated.

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Culture Media

According to standard operating procedures, Naratech laboratory and based on ISO 11133, bacterial inoculum prepared from stock bacterial culture which is prepared from pure bacterial strain (various dilutions were prepared to verify the total viable count).

1. The bacterial suspension consists of the following strain:

Staphylococcus aureus	(ATCC No.6538)

2. Using the appropriate culture media for each Test depending on the ISO method:

Test	Culture media
Staphylococcus aureus count	Baird Barker agar /37 °C for 48 hr.

Procedure

1. We chose four types of surfaces and divided them into fourteen slides with dimensions (40cm*20cm) size.
2. Cleaned the fourteen slides of surfaces with an alcohol sanitizer using microfiber towel.
3. Let the fourteen slides of surfaces to air-dry for 10-15 min.
4. Thoroughly mist sprayed the fourteen slides of surfaces with MICROSURE™ Surface Sanitizer while held the sprayer from 25 cm - then let the surfaces to air-dry.
5. Waited for 72 hours while maintaining the surfaces under safe precautions.
6. On the fourth day, we applied distinctive abrasion /cleaning processes on the slides according to specific protocols of which are indicated in the results' table1 then allowed for test substrates to air-dry for 1 hour.
7. Prepared appropriate concentrations of microorganism: - **Staphylococcus aureus** ($8.2 * 10^5$ cfu/ml).
8. Spread the microorganism suspension (10^5 cfu/ ml) over each slide, waited 90 minutes and took environmental swabs.

   (Moist cotton swab with normal saline 3%)
   (Swabbed area size100cm2).

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Protocols & Results

Surface	Slide #	Abrasion Protocol	Abrasion Methodology	Reduction %
Glass	1	Nothing	No abrasion applied	100%
	2	Hand Abrasion	Rubbed slide with hand	100%
	3	Alcohol 70%	Wiped slide with microfiber cloth	100%
	4	Water only	Wiped slide with microfiber cloth	100%
	5	Water & Hand Liquid soap	Cleaned slide with Rough sponge	100%
	6	Water & Hand Liquid soap	Cleaned slide with soft sponge	100%
MDF	7	Hand Abrasion	Rubbed slide with hand	100%
	8	Alcohol 70%	Wiped slide with microfiber cloth	100%
	9	Water only	Wiped slide with microfiber cloth	100%
Leather	10	Hand Abrasion	Rubbed slide with hand	100%
	11	Alcohol 70%	Wiped slide with microfiber cloth	100%
	12	Water only	Wiped slide with microfiber cloth	100%
Fabric	13	Water only	Wiped slide with microfiber cloth	100%
	14	Water and detergent	Wiped slide with microfiber cloth	99.82%

Conclusions

1. In order to comply with EN1276 Standard, a product must achieve 5 log reductions. This reduction was achieved by Microsure™ Surface Sanitizer.

2. We tested one leather surface slide after cleaning it with alcohol and 10 minutes of inoculation. The test result showed 100% reduction, same as 90 minute results from inoculation starting point. This leads us to conclude that the results will be 100% reduction on 10 minutes and 90 minutes.

3. The MICROSURE™ Surface Sanitizer proves to be effectively very high and fast for microorganism reduction after applying persistent hard surface Abrasion.

4. The MICROSURE™ Surface Sanitizer provides long-lasting protection while the surfaces are exposed to different types of abrasions.

5. Following guidance from the World Health Organization, (WHO/WPE/GIH/2020.1), Naratech Labs does not perform any tests using the COVID-19 virus, many disinfectants follow EN disinfectant (eg. EN1276) or USP testing for pathogenic and objectionable organisms and the panel of organisms used is more resistant than most viruses, including COVID-19.

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References

1. **ISO 7218: (**International standard. ISO 7218, Microbiology of food and animal feeding stuffs - General requirements and guidance for microbiological examinations.)
2. **ISO 11133:** (Preparation, production, storage and performance testing of culture media)
3. **ISO 6888:** Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species)