



In association with:



Innovative Solutions for Infection Control

Assessment for Viral and Pathogenic Transport Between Laboratory Users at a Global Life Sciences Provider

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1. Abstract

The gowning area of a clean room and laboratory access at a global life sciences provider was used as a case study to analyse bacterial contamination pre and post decontamination using a handheld airless sprayer and Hybrisan's advanced non-alcohol sanitisers. The presence of bacteria and the way that cross-contamination is achieved was considered as a reasonable model for the transport of pathogenic organisms (including Coronavirus) in a system. Hybrisan Surface + Hands Sanitiser was successful in eradicating bacteria present pre-treatment.

2. Introduction

The client is a global provider of technology and services that advance and accelerate the development and manufacture of therapeutics who are keen to ensure that their staff are suitably protected against the potential risk of contracting Coronavirus from across the facility including in offices, shared facilities, high traffic areas, laboratories and clean rooms. We at Hybrisan were asked to implement a testing regime to assess the bacterial cleanliness of the gowning area of a clean room and entrance to a laboratory. Testing for virus on surfaces is complex and outside the scope of this trial. However, bacterial presence can be considered as a strong indicator of how pathogens can be transmitted via cross-contamination between users.

- 2 areas within the gowning room and the access door to a laboratory was chosen for assessment

Our approach was to determine key high contact touch points and to assess the bacterial load present at these points pre and post decontamination using Hybrisan's polymeric Biocide and a hand held Graco airless sprayer as a delivery mechanism.

3. Aims

The aims of this assessment were to:

- Determine high contact regions
- Use bacterial recovery swabs to assess bacterial load at the high contact points pre-decontamination.
- Use a handheld Graco airless sprayer to treat all high contact point with a view to decontamination and to repeat bacterial swabs to recover any remaining bacterial load.
- Incubate recovered samples and assess variation in bacterial contamination Pre and Post decontamination.

- Evaluate the data collected from the swabs to determine levels of decontamination.

4. Methodology

In this case bacteria was used as an indicator for pathogenic cross-contamination as viral detection on a surface was beyond the scope of the analysis.

The procedure used for data collection and analysis was conducted as follows

1. Visual assessment of the area to indicate high touch points.
2. Bacteria recovery swabs used to recover bacterial load pre-treatment
3. A Graco handheld airless sprayer was used to dispense Hybrisan's polymeric biocidal surface + hand treatment.
4. Bacteria recovery swabs used to recover any remaining bacterial load post treatment.

The swabs used contained a neutraliser know to neutralise the disinfectant to ensure all live cells were counted post treatment. Bacteria were recovered from the swabs in 1ml of neutraliser and enumerated using the pour plate method.

5. Results and Discussion

5.1. Cleanroom Facility

Sample Point	Bacterial Load (CFU/ml)*	
	Pre	Post
<i>1 – Soap Dispenser</i>	2	<1 ¹
<i>2 – Phone</i>	100	<1
<i>3 – Office Door Handle</i>	10	<1

*Colony Forming Units/ml

There were small numbers of bacteria recovered from all areas pre-treatment. Following treatment there were no recoverable cells showing the treatment to be effective. It is expected this was greater

¹ Limit of sensitivity – where there was no growth on the plate the minimum reportable CFU/ml was 1 therefore these were reported as <1

However, this was the maximum reduction possible given the limit of sensitivity of the culture method. The testing was carried out using Hybrisan Surface + Hands which is a multiplatform product suitable for both hands and surfaces.

6. Recommendations

6.1. General Recommendations

1. All areas should be cleaned daily to ensure there is no build up of dirt and dust

6.2. Decontamination Recommendations

1. All high traffic areas should be decontaminated frequently using Hybrisan Surface + Hands through an airless sprayer.
2. High touch points such as door handles and touch points should be topped up through the day using Hybrisan Surface + Hands through an atomizer and/or trigger spray bottle.
3. Hybrisan Surface + Hand Sanitiser should be used as liquid or gel for hand sanitisation in all areas being decontaminated to ensure the protection is not deteriorated by alcohol products.
4. In the clean room areas it is advisable a further trial is carried out using the advanced surface product to prove its compatibility with the clean room systems.

7. Conclusions

The areas tested showed low levels of bacterial contamination prior to treatment, as expected. The results of this trial show Hybrisan technology has eliminated the bacteria whilst leaving a residual protection. Protection is expected to be further enhanced through repeated use with a greater residual benefit.

By using a complete range of products ongoing residual protection can be maintained without deterioration due to product incompatibility. The Hybrisan range of sanitisers ensure that protection is passed between all hands and surfaces offering ongoing protection against pathogenic organisms whilst its multi material compatibility ensures surfaces are not damaged or compromised.

It is advised a further trial is carried out with the advanced surface product to ensure its compatibility and prove its effectiveness in clean room environments.