

TRIAL REPORT

| Project title | Misting trial at Chilled Environment Pack House | | | | | | |
|---------------|---|--------------|------------|--|--|--|--|
| Sector | Produce Packing | Collaborator | Restricted | | | | |
| Participants | Restricted | | | | | | |
| Start date | 27/08/2020 | Location | Restricted | | | | |

Project aim

The aim of this project was to assess the decontamination efficacy of hypochlorous acid (HOCI) applied as a mist in communal spaces. This was achieved by measuring micro bioburden on hand-touch surfaces / the factory environment before and after the misting process.

Project Outline

It is imperative that people are kept safe at work, especially in confined spaces / areas with high concentrations of workers / areas with high rates of travel.

SARS-CoV-2 is an enveloped virus approximately 60-140nm in diameter. Transmission occurs through touch or aerosol spreading. During speech, humans emit thousands of oral fluid droplets per second which can remain airborne for 8-14 minutes (Stadnytskyi *et al.*, 2020). SARS-CoV-2 is detectable in surface aerosols for up to three hours, up to four hours on copper, up to 24h on cardboard and up to 2-3 days on plastic and stainless steel (van Doremalen *et al.*, 2020). There are also reports suggesting that coronaviruses can survive for 10 to 100 days in water, depending on the temperature (Gundy and Gerba, 2009), with the virus remaining for longer in lower (<4°C) temperature than higher (>23°C) temperature water.

There is a need to disinfect surfaces potentially exposed to SARS-CoV-2 to prevent / reduce the risk of transmission from healthy but asymptomatic people. An ideal disinfectant and sanitiser must be fast acting, broad spectrum, safe for humans and the environment, easy to use and relatively inexpensive. Hypochlorous acid may be the disinfectant of choice. Salvesan hypochlorous acid is effective against bacteria, viruses, protozoa, fungi, yeasts, moulds and spores (BS EN accreditations include 1276:2009, 13697:2001, 13704:2002, 14476:2013). Figure 1 shows the general order of susceptibility of various classes of microorganisms to disinfectants. Different classes of microorganisms exhibit different degrees of susceptibility due to biochemical and biophysical characteristics of the organism. Enveloped viruses, such as coronavirus, are the most susceptible to disinfectants ie the easiest to kill.

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Hypochlorous acid has very low contact times and is safe for people and the environment. It can be misted into the environment when people are in place with no deleterious effects. It can be sprayed onto a surface and left with no fear of toxic residues. Workers do not need any PPE to handle it. It can be used on soft and hard surfaces. It is extremely versatile and can be used as a dip, spray, mist or fog. It is simple to use therefore compliance is high. It does not lose efficacy at low temperatures. It has a 12 month shelf life if kept under suitable storage conditions. As such Salvesan offers a safe and efficacious disinfection option in domestic, commercial, community and healthcare settings.

Selecting the most suitable disinfectant is one of the two components essential for effective environmental disinfection. The other component is ensuring that the disinfectant contacts all surfaces, is given the correct dwell time and that manufacturers label instructions are followed. There has been considerable interest from all sectors in the potential of mist as a decontamination strategy: environmental misting potentially allows a disinfectant to reach areas that would not normally be sanitised, requires minimal human input and provides visual reassurance that something positive is being done.

At Aqualution Systems we have carried out extensive misting work over the last decade and have several commercial applications where misting is highly effective, both against bacteria and viruses (eg the decontamination of

raspberries amid fears of Hepatitis A and Norovirus). To date our experiments in healthcare have consistently demonstrated that there is no substitution for "elbow grease" and that the highest decontamination rates are achieved using a traditional spray and wipe technique. This is because dust, dirt and organic matter can create protective reservoirs for pathogens if not effectively removed. However, we have found that misting after physical cleaning can achieve additional decontamination benefits above physical cleaning alone.

The aim of the current study was to assess how effective misting Salvesan is in the communal areas of a commercial factory that had experienced Covid 19 positive employees. We investigated decontamination rates on a range of surfaces immediately after environmental misting with Salvesan. We chose the gents lavatories next to the canteen / break area as these facilities are heavily used by many people. A newly developed misting technology was utilised for this study.

Methodology

The domestic staff were asked not to clean the area prior to our arrival to ensure that it was well trafficked and had sufficient levels of microbial contamination. We began the trial at 2pm, after the shift had taken their lunch break. Figure 2 shows the layout of the area and where swabs were taken from. 25 sites were chosen in total.

Figure 2: Swabbing sites



All samples were taken using sterile trans-swabs. Sterile templates were used to ensure that the same area was sampled with each swab. Templates measure 10cm x 10cm therefore the swab result is $cfu/100cm^2$. Some areas were not sufficiently large to accommodate a template so they were swabbed free hand. When swabbing free hand care was taken to choose an area that would be easy to replicate ie the whole lock mechanism on the internal door samples and the whole push section of the soap dispenser. Initial samples were taken under "as found" conditions. The area was then misted at the rate of $2ml/m^3$ using a handheld mister. Misting took approximately 6 minutes. This was followed by a 5 minute dwell time. The same areas were then re-swabbed by the same person using the same technique – these were the post-mist samples.

A total of 50 swabs were obtained. Swabs were couriered to the lab (One Scientific, Avonmouth) to arrive before 9am the following morning. Swabs were analysed for aerobic colony counts (ACC) using the pour-plate technique.



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| Results | | | | | | | | | | |
|---|--|------------------------------|-----------|----------|-------|-----------|-----|------|-----------|--|
| All swa | All swabs were successfully analysed by the lab. The results are shown below in table 1. | | | | | | | | | |
| Table 1: Aerobic Colony Counts (ACC) before and after treatment (colony forming units, cfu) | | | | | | | | | | |
| Swab Sampling site Swabbing area ACC (cfu per swab) | | | | | | | | | | |
| site | | Template: 100cm ² | Free hand | Pre | Post | Reduction | Pre | Post | Reduction | |
| 1 | Entrance door | * | | 1100 | 90 | 1010 | 3 | 1 | 2 | |
| 2 | Under hand dryer (LHS) | * | | 2700 | <10 | 2699 | 3 | 0 | 3 | |
| 3 | Under hand dryer (RHS) | * | | 180 | <10 | 179 | 2 | 0 | 2 | |
| 4 | Soap dispenser: Red | | * | 6000 | <10 | 5999 | 3 | 0 | 3 | |
| 5 | Soap dispenser: Green | | * | 140 | <10 | 139 | 2 | 0 | 2 | |
| 6 | Soap dispenser: Grey | | * | 8000 | <10 | 7999 | 3 | 0 | 3 | |
| 7 | Cubicle door 1 | * | | 140 | <10 | 139 | 2 | 0 | 2 | |
| 8 | Cubicle door 2 | * | | <10 | <10 | 0 | 0 | 0 | 0 | |
| 9 | Cubicle door 3 | * | | 29000 | <10 | 28999 | 4 | 0 | 4 | |
| 10 | Cubicle door 4 | * | | <10 | <10 | 0 | 0 | 0 | 0 | |
| 11 | Under hand dryer (LHS) | * | | 130 | 30 | 100 | 2 | 1 | 1 | |
| 12 | Under hand dryer (RHS) | * | | 150000 | <10 | 149999 | 5 | 0 | 5 | |
| 13 | Soap dispenser: Red | | * | 10 | 20 | -10 | 1 | 1 | 0 | |
| 14 | Soap dispenser: Green | | * | 90 | 10 | 80 | 1 | 1 | 0 | |
| 15 | Internal door lock 1 | | * | 2700000 | 460 | 2699540 | 6 | 2 | 4 | |
| 16 | Internal door lock 2 | | * | 3800000 | <10 | 3799999 | 6 | 0 | 6 | |
| 17 | Internal door lock 4 | | * | 600000 | 10 | 599990 | 5 | 1 | 4 | |
| 18 | Underneath dryer | | * | <10 | <10 | 0 | 0 | 0 | 0 | |
| 19 | Wall by urinal | * | | <10 | <10 | 0 | 0 | 0 | 0 | |
| 20 | Wall by shower cubicle | * | | <10 | <10 | 0 | 0 | 0 | 0 | |
| 21 | Wall by entrance | * | | 10 | <10 | 9 | 1 | 0 | 1 | |
| 22 | Underneath dryer | * | | 30 | <10 | 29 | 1 | 0 | 1 | |
| 23 | Floor: near urinal | * | | >1000000 | 40000 | 9960000 | 7 | 4 | 3 | |
| 24 | Floor: near cubicles | * | | >1000000 | 360 | 9999640 | 7 | 2 | 5 | |
| 25 | Floor: near sinks | * | | >1000000 | 13000 | 9987000 | 7 | 4 | 3 | |

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Results

The grand mean pre treatment count is 1,491,901 cfu (range <10 to >10,000,000 cfu) and the grand mean post treatment count is 2,160 cfu (range <10 to 40,000 cfu).

On average microbial burden was reduced by 2 logs after misting hypochlorous acid with up to 6 log reductions observed. 18 of the 25 sampling sites showed at least one log reduction. Seven showed no log change: 5 of these had pre counts <10 cfu and 2 were 10-100 cfu. 21 of the 25 post treatment samples were <100 cfu / swab (<1 cfu/cm²) with the majority (16/25) achieving 0 log counts (<10 cfu per swab).

The highest counts were observed in the three floor samples where all pre counts were >10,000,000 cfu (post treatment average was 17,786 cfu). Despite the very high initial loading misting still achieved a 3-5 log reduction in counts. Floors are the most challenging area for mist as there is organic matter present which can consume the mist / provide a protective layer for the microorganisms present. If the floor samples are excluded then the pre treatment average is 331,706 cfu and the post treatment average is 29 cfu.

Hand touch sites were generally within a 2 to 4 log range pre-treatment (0-1 logs after treatment). The exception was the internal lock mechanisms on the toilet cubicles where counts were consistently high (5, 6 and 6 logs). Misting reduced these counts to 2, 0 and 1 log.

Conclusions

Pre treatment counts were variable with floor swabs achieving the highest counts. Microbial loading pre-treatment counts on hand touch sites were within expected parameters which is indicative of a good level of cleaning. The highest levels of microbial burden (with the exception of the floor) were the internal lock mechanisms in the toilet cubicles.

Misting with hypochlorous resulted in a significant and repeatable effect on log counts.

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APPENDIX: Raw Data

Summary table of raw data

| CWAD CITE | DDE TDE ATMENIT | DOCT TDEATMENT |
|-----------|--------------------|--------------------|
| SWAB SITE | PRETREATMENT | POST IREATMENT |
| | COUNT (cfu / swab) | COUNT (cfu / swab) |
| 1 | 1100 | 90 |
| 2 | 2700 | <10 |
| 3 | 180 | <10 |
| 4 | 6000 | <10 |
| 5 | 140 | <10 |
| 6 | 8000 | <10 |
| 7 | 140 | <10 |
| 8 | <10 | <10 |
| 9 | 29000 | <10 |
| 10 | <10 | <10 |
| 11 | 130 | 30 |
| 12 | 150000 | <10 |
| 13 | 10 | 20 |
| 14 | 90 | 10 |
| 15 | 2700000 | 460 |
| 16 | 3800000 | <10 |
| 17 | 600000 | 10 |
| 18 | <10 | <10 |
| 19 | <10 | <10 |
| 20 | <10 | <10 |
| 21 | 10 | <10 |
| 22 | 30 | <10 |
| 23 | >10000000 | 40000 |
| 24 | >10000000 | 360 |
| 25 | >1000000 | 1300 |

Raw data (as supplied by One Scientific, independent laboratory)



CERTIFICATE OF ANALYSIS

Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | | | | |
|----------|--|--|--|--|--|--|--|
| 4392690 | 1 1 pre | 1100 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: 1445 | Deviation Assessment: N | | | | | |
| 4392691 | 2 2 pre | 2700 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | | |
| 4392692 | 3 3 pre | 180 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | | |
| 4392693 | 4 4 pre | 6000 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | | |
| 4392694 | 5 5 pre | 140 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | | |
| 4392695 | 6 6 pre | 8000 | | | | | |
| | System: Area: | | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | | |

Abbreviations: X = testing not required, (P) = presumplike, ~ = approximately, >= approximately greater than, < = less than. Tests marked with * are outside the UKAS scope of accrediation for One Scientific Lid. Tests marked with # have been abbonding to anyote the testing not required, (P) = presumplike, ~ = approximately greater than, < = less than. Tests marked with * are outside the UKAS scope of accrediation for One Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, (1 = 0-ne Scientific Lid. Unit 5, Avon Riverside Estate. Victoria Road, Avonnouth, Bristol BS11 90B, This report shall not be reprodued accept in the sample acception of the sample acception acception of the sample acception of the sample acception of the sample acception of the sample acception on the sample acception of the sample acceptio

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cful/swab Aerobic colony count at 30°C 48 hours | | | | |
|----------|---|---|--|--|--|--|
| 4392696 | 7 7 pre System: | 140 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392697 | 8 8 pre System: Area: | < 10 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392698 | 9 9 pre System: Area: | 28000 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392699 | 10 10 pre System: Area: | < 10 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment C | | | | |
| 4392700 | 11 11 pre System: Area: | 130 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392701 | 12 12 pre System: Area: | 150000 | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | | | |
|----------|---|--|--|-----|-----|-----|
| 4392702 | 13 13 pre | 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392703 | 14 14 pre | 90 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392704 | 15 15 pre | 2700000 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392705 | 16 16 pre | ~ 3800000 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | în de la companya de | în. | îc. | îc. |
| 4392706 | 17 17 pre | 600000 | | | | |
| | System: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392707 | 18 18 pre | < 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |

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Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | | | |
|----------|---|--|--|--|---|---|
| 4392708 | 19 19 pre | < 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392709 | 20 20 pre | < 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392710 | 21 21 pre | 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | ^ | |
| 4392711 | 22 22 pre | 30 | | | | |
| | System: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment. C | | | | |
| 4392712 | 23 23 pre | > 1000000 | | | | |
| | System: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | 1 |
| 4392713 | 24 24 pre | > 1000000 | | | | |
| | System: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| | | | | | | |

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | |
|----------|--|--|--|--------|
| 4392714 | 25 25 pre System: | > 10000000 | | |
| | Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | 0 1 |
| 4392715 | 26 1 post | 90 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | |
| 4392716 | 27 2 post | < 10 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | |
| 4392717 | 28 3 post | < 10 | | |
| | System: | | | |
| | Area: Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | 1 |
| 4392718 | 29 4 post | < 10 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | |
| 4392719 | 30 5 post | < 10 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | 2 |

Abbreviation: X = testing not regimed, [9] = presumptive, ~ - approximately, > - approximately greater flux, < = less flux. Tests marked with * are outside the UKS scope of accreditation for One Scientific List. Tests marked with # have been subcontracted to an external laboratory. Location of testing is shown in brackets either the method cose LF = One Scientific List. Unit F. 7.44 Victoria Read, Avennoux, Bristol BS1 906, Li 3 - One Scientific List. Tests marked with # have insteaded with a read outside the UKS scope of accreditation for One Scientific List. Tests marked with # have insteades accurate the use of the scope of Links and the use of the scope of Links accurate the use of the scope of Links accura

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | | |
|----------|--|--|--|----------|--|
| 4392720 | 31 6 post System: | < 10 | | | |
| | Area: Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | |
| 4392721 | 32 7 post System: Area: | < 10 | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | |
| 4392722 | 33 8 post System: Area: | < 10 | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | 20 50 | |
| 4392723 | 34 9 post System: Area: | < 10 | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | |
| 4392724 | 35 10 post System: Area: | < 10 | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | |
| 4392725 | 36 11 post System: Area: | 30 | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | |

Abbreviations: X = testing not required, (P) = presumptive, ~ = approximately greater than, < = less than. Tests marked with * are outside the UKAS scope of accreditation for One Scientific Lid. Tests marked with # have been subcontracted to an external laboratory. Location of testing is shown in brackets after the method cose LF = One Scientific Lid. Unit F, 7AM Victoria Road, Avormouth, British BS11 90B, L3 = One Scientific Lid. Unit 9, 7AM Victoria Road, Avormouth, British BS11 90B, L3 = One Scientific Lid. Tests marked with # have been subcontracted to an external laboratory. Location of testing is shown in brackets after the method cose LF = One Scientific Lid. Unit F, 7AM Victoria Road, Avormouth, British BS11 90B, L3 = One Scientific Lid. Unit 9, 7AM Victoria Road, Avormouth, British BS11 90B, L3 = One Scientific Lid. Institute the availatory of accreditation taking to samples before receipt by the laboratory are provided by the custome rules: otherwise stated as a comment, and this information can after the validity of results. These results are representative of the sample as supplicible to UID regulations. Medications of metal are performed according to Mark Podukt Regulations. 2003 and are not carled as the accredite the validity of requestions. The accreditate the validity of requestions. As a result of the evaluation for testings is not requested. Comments, opinions and interpretations expressed herein are conticident for coding is and longer provided as code determined by the results of available the evaluation. As a result of the evaluation for testings advertises. J This results are available to result and the results on the advertise the related. Explanation on the coding is an appropriate presservative/extratiling data relations accorded on with the relations. As a result of the evaluation the related as a constration of the relations. The sample relations accorded and within permitted the relation appropriate presservative/extratiling agent, C1 No carreling data/mine/conditions provided withe

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | |
|----------|--|--|--|
| 4392726 | 37 12 post System: | <10 | |
| | Area: Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | |
| 4392727 | 38 13 post System: Area: | 20 | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | |
| 4392728 | 39 14 post System: Area: | 10 | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment C | |
| 4392729 | 40 15 post System: Area: | 460 | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | |
| 4392730 | 41 16 post System: Area: | < 10 | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | |
| 4392731 | 42 17 post System: Area: | 10 | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment. C | |

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW

Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | | | |
|----------|---|--|----------|---|-----------|--------|
| 4392732 | 43 18 post | < 10 | | | | |
| | System: Area | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392733 | 44 19 post | < 10 | | | | |
| | System: Area | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392734 | 45 20 post | 10 | | | | |
| | System: Area | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | |
| 4392735 | 46 21 post | < 10 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | for the second se | <u>fo</u> | î.e |
| 4392736 | 47 22 post | < 10 | 3 | | .). | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | 20 10 | 50 50 | 20 50 | 5 5 |
| 4392737 | 48 23 post | 40000 | | | | |
| | System: Area: | | | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | | | - |

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Aqualution Systems 19 Fenkle Street Alnwick NE66 1HW Certificate no: 20-34957_1 Report Date: 07/09/2020 Submission No: 20-34957 Test Date: 28/08/2020

Date Received: 28/08/2020 Sample Type: ENVIRONMENTAL SWAB

| Lab Ref. | Sample Details | M001(LF) cfu/swab Aerobic colony count at 30°C 48 hours | | |
|----------|--|--|--|--|
| 4392738 | 49 24 post | 360 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: | Deviation Assessment: C | | |
| 4392739 | 50 25 post | 13000 | | |
| | System: Area: | | | |
| | Sample Ref: Samp Date: 27/08/2020 ,Time: 1525 | Deviation Assessment: N | | |

Signed by:

Monika Pauziene, Deputy Laboratory Manager

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