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Merlin Ventilator Disinfection with F10SC Disinfectant

Aim

The internal air passageways of ventilators cannot be disinfected without completely stripping the machine, an impractical procedure if this is to be done on a regular basis. The aim of this experiment was to test the effectiveness of the product F10 Disinfectant in a pre-diluted ready to use aerosol can pack to disinfect a contaminated ventilator.

Materials

F10 Disinfectant Aerosol in a 500ml aerosol can is manufactured by Health and Hygiene (Pty) Ltd, South Africa.

Method

The test was carried out in March 2006

Air from the outlet of the Vetronic Services Merlin Ventilator was passed through sterile water to collect any possible colony forming units (cfu). The exiting conditions were established by taking two samples after passing a total of 8 litres of air through 250ml of sterile water.

The Merlin Ventilator was then inoculated with a live culture of E coli spp in a broth supplied by Pinmoore Animal Laboratory Services, Cheshire who also did the microbiology analysis. The inoculant was introduced to the ventilator by opening up the internal pipework and placing droplets of the culture inside the pipework. The pipework was then closed. The ventilator was then run for 30 minutes to disperse the inoculant before being switched off and left for 8 hours at room temperature. The ventilator was then switched on and the post inoculating condition established by taking 2 samples by passing 8 litres of ventilator output air through 250ml of sterile water.

Disinfection of the air passageways was performed using F10 Disinfectant Aerosol supplied by F10 Biocare, UK. The aerosol was activated and spray directed into the inlet of the ventilator during the chamber-filling stroke. In total, 20 X 2-second sprays were used. The ventilator was then run for 1 hour continuously to circulate the disinfectant. After this period a further 8 litres of outlet air was passed through 250ml of sterile water and submitted for laboratory analysis.

Results:

Existing conditions water sample analysis No. 1 count of 0 cfu/L
Existing conditions water sample analysis No. 2 0 cfu/L

Post-inoculation water sample analysis No.1 count of 100 cfu/L
Post-inoculation water sample analysis No.2 75 cfu/L

Post-disinfection water sample analysis No.1 count of 0 cfu/L
Post-disinfection water sample analysis No.2 0 cfu/L

Conclusion

The use of F10 Disinfectant Aerosol when directed into the inlet of the Merlin Ventilator chamber-filling stroke for 20 X 2 sprays and circulated for 1 hour with the machine running totally eliminated all the inoculant E coli bacteria.

Keith Simpson, BVSc, MRCVS, AMIIE (Electronics), Managing Director