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Research Report

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Environmental Surface Wetness Test: Comparison of Disinfectant Wipes

Purpose: To determine the extent of surface wetness for hydrogen peroxide disinfectant wipes compared to competitor environmental surface disinfectants.

Methods and Materials:

Four tables, each measuring 12.5 sq. ft., were cleaned using a non-antimicrobial soap, rinsed with DI water, and then air dried prior to testing. The newly cleaned laboratory tables were sectioned off into equal quadrants. A single disinfectant wipe ***(Table 1)*** was used to wet quadrant I ***(Figure 1).*** A bactericidal/virucidal contact time was used for each disinfectant that represented the biocidal range for the majority of microorganisms commonly found in a dental facility. Once the contact time was reached, cigarette paper (4.5 x 7.5 cm) was passed across the table's surface to detect the presence of liquid ***(Figure 2).*** If the surface remained wet for the entire length of the contact time, the table was re-cleaned with soap and water, as described above, then the test was repeated using a new single wipe but with an additional quadrant to cover. For every positive result the test was repeated with the addition of another surface quadrant. Testing concluded once a disinfectant solution failed to remain wet for the instructed contact time. Each test surface disinfectant was tested in triplicate.

Table 1: Total exposure time and active ingredients of test disinfectants

Surface Disinfectants Tested	Most Common Bactericidal/Virucidal Contact Times (minutes)	Active Ingredients
Optim 1 (SciCan)	1	Hydrogen peroxide
Caviwipes (Kerr Totalcare)	3	Isopropanol, Ethylene Glycol Monobutyl Ether, Diisobutylphenoxyethyldimethylbenzylammonium chloride
Super SaniCloth (PDI)	2	n-alkyl dimethyl ethybenzyl ammonium chloride, n-alkyl dimethyl benzyl ammonium chloride, isopropyl alcohol
Birex (Biotrol)	10	o-phenylphenol, o-benzyl-p-chlorophenol

Figure 1: A disinfectant wipe being used on a single quadrant.

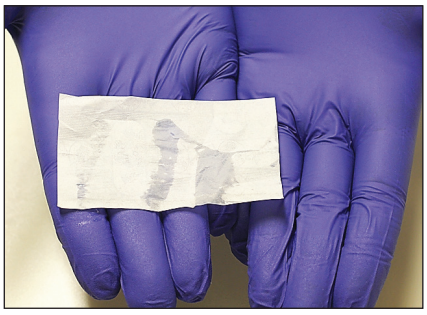

Figure 2: A wet sheet of cigarette paper proving the surface was still wet once the contact time was met.

Results

Of the surface disinfectants tested, SciCan's newest formulation, ***Optim 1,*** outperformed the other test solutions by maintaining wetness on a surface twice the size (4 quadrants) of the next best performing solution ***Caviwipes*** (2 quadrants) ***(Table 2)***. ***Super SaniCloth*** and ***Omniwipes*** were only able to successfully wet 1 quadrant for the allotted contact time. The remaining test solution, ***Birex,*** was unable to maintain a wet surface within a single quadrant.

Table 2. Number of quadrants successfully wiped

Disinfectant Solution	Test 1	Test 2	Test 3	Average
Optim 1 (SciCan)	4	4	4	4
Caviwipes (Kerr Totalcare)	2	2	2	2
Super SaniCloth (PDI)	1	1	1	1
Birex (Biotrol)	0	0	0	0

Summary

An important factor to consider concerning environmental surface asepsis is the length of time surfaces remain wet after application of a disinfectant. In this study 4 disinfectant wipes were evaluated for their ability to maintain wetness when using a designated contact time. Four surface quadrants treated with ***Optim 1*** remained wet for the 1 minute contact time. In contrast, the other commercial disinfectants were unable to maintain surface wetness past 2 quadrant applications. The dual phenolic ***(Birex)*** wipes dried faster than the contact time given on the label. In summary, the hydrogen peroxide disinfectant wipes performed the best under the conditions tested.