



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 33TB (SciCan)	1	Hydrogen peroxide
Caviwipes (Kerr Totalcare)	3	Isopropanol, Ethylene Glycol Monobutyl Ether, Diisobutylphenoxyethyltrimethylbenzylammonium chloride
Super SaniCloth (PDI)	2	n-alkyl dimethyl ethylbenzyl ammonium chloride, n-alkyl dimethyl benzyl ammonium chloride, isopropyl alcohol
Birex (Biotrol)	10	o-phenylphenol, o-benzyl-p-chlorophenol
FD 350 (Durr Dental)	5	1-propanol, ethanol
Mikrozid AF (Schülke)	5	Propan-1-ol, ethanol
Omniwipes (OmniDent Dental)	1	1-propanol, ethanol, didecyltrimethylammonium chloride



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

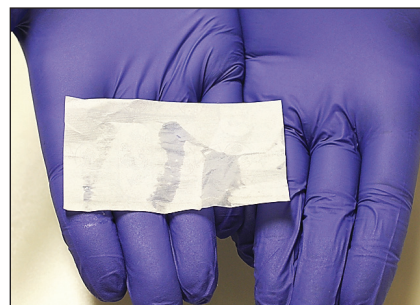


Figure 2: A wet sheet of cigarette paper proving the surface was still wet once the contact time was met.

Results

Of the surface disinfectants tested, SciCan's *Optim 33TB*, 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 solutions, *Birex*, *FD 350*, and *Mikroqid AF*, were 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 33TB (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
FD 350 (Durr Dental)	0	0	0	0
Mikroqid AF (Schülke)	0	0	0	0
Omniwipes (OmniDent Dental)	0	1	1	1

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 7 disinfectant wipes were evaluated for their ability to maintain wetness when using a designated contact time. Four surface quadrants treated with *Optim 33TB* 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 2 high alcohol preparations (*FD 350*, *Mikroqid AF*) and 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.