



## Environmental Surface Wetness of Disinfectant Wipes

Margaret Gilmartin, B.S., Matt Cowen, B.S., John A. Molinari, Ph.D.

### Introduction:

Disinfectant wipes play a crucial role in surface disinfection by quickly cleaning and killing germs on surfaces, but their effectiveness heavily depends on the ability to remain wet for the specified contact time on the product label. The contact time is the duration that the surface must remain visibly wet to sufficiently kill bacteria and viruses with the times specified on labels indicating how long is necessary for full efficacy. The contact time required can vary greatly by product, as well as the amount of surface area each wipe can effectively cover. The design of the wipe material, environmental conditions and evaporation properties of the solution used affect how long the surface will remain wet which can be very important for consistently disinfecting high-touch surfaces without having to use multiple wipes.

In this study, we compared the ability of multiple brands of wipes to achieve sufficient surface wetness and the effective area that could be covered by using a single wipe.

### Results Summary:

A key consideration regarding environmental surface asepsis is how long the surface stays wet after a disinfectant is applied. In this study, four disinfectant wipes were compared for their ability to remain wet for their specified contact times. **OPTIM OS1** surpassed the other surface disinfectants by remaining wet for 3 quadrants with the lowest contact time of 1 minute.

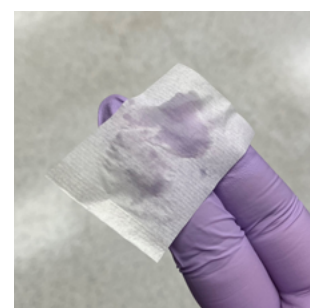
### Experimental Design:

#### METHODS AND MATERIALS:

**Environmental Surface Wetness:** Prior to exposure to surface disinfectants and after each trial, tabletop surfaces were cleaned with non-antimicrobial soap and deionized water. The laboratory table (12.5 sq ft surface area) was sectioned off using tape into quarters (3.125 sq ft per quarter). A single test wipe was used to wet a quarter of the table. After the contact time has been reached, cigarette paper was used to determine if the surface is wet or dry. If the test passes for the first quarter, the test was repeated with an additional quarter, up to four quarters, until failure to remain wet for the contact time. Tests were repeated at least 3 times on each quarter. The environmental conditions had an average temperature of  $24.2 \pm 0.4^{\circ}\text{C}$  ( $75.6 \pm 0.4^{\circ}\text{F}$ ) and had a relative humidity of  $46.4 \pm 0.6\%$ .



**Figure 1.** Surface remaining wet in a single quadrant.



**Figure 2.** A wet sheet of cigarette paper to prove that the surface remained wet for stated contact time.

Surface Disinfectant	Bactericidal, Tuberculocidal, Virucidal Contact Times (minutes)	Active Ingredient Category	Active Ingredients
<b>OPTIM OS1</b> (SciCan)	1	<b>LAS Active System</b>	dodecylbenzenesulfonic acid
<b>ProSpray™ Wipes</b> (MicroCare)	3	<b>Phenolics</b>	o-phenylphenol, o-benzyl-p-chlorophenol
<b>CaviWipes™</b> (Metrex)	3	<b>Quats-Alcohol</b>	diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride, Isopropanol
<b>Super Sani-Cloth®</b> (PDI)	2	<b>Quats-Alcohol</b>	n-alkyl dimethyl ethylbenzyl ammonium chlorides, n-alkyldimethyl benzyl ammonium chloride, isopropyl alcohol

**Table 1.** Total Contact Times and Active Ingredients for Each Disinfectant.

### Results:

Of the surface disinfectants tested, SciCan's **OPTIM OS1** outperformed the other disinfectants by staying wet for the allotted time stated for 3 quadrants. MicroCare's **ProSpray** could stay wet for 2 quadrants for the 3-minute contact time specified. Metrex's **CaviWipes** remained wet for 1 quadrant and PDI's **Super Sani-Cloth** was unable to remain wet for the 2-minute contact time specified.

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Surface Disinfectant	Quadrants Wet at Contact Time	Surface Area, sq ft
<b>OPTIM OS1</b> (SciCan)	3	<b>9.38</b>
<b>ProSpray™ Wipes</b> (MicroCare)	2	<b>6.25</b>
<b>CaviWipes™</b> (Metrex)	1	<b>3.13</b>
<b>Super Sani-Cloth®</b> (PDI)	0	<b>0</b>

**Table 2.** Number of Quadrants Successfully Wiped for Stated Contact Times.