

# DISINFECTANT EFFICACY ON WOOD SURFACES

**Product : CPD**

**Sample No : S:20:06:6002**

**Report Date: 10-Jun-20**

**Aim :** To study Efficacy of Disinfectant sprayed on wood surfaces to remove microbes and pathogens. Disinfectants are generally used to sanitize area and/or object which may have enough bacteriological load that create health risks / damages to people who comes in contact with such objects / areas. When Disinfectant is sprayed on wood surfaces, efficiency of disinfectant with respect to removal of microbes / pathogens and sensitization rate is studied in this project.

**Objective :** Efficacy study of disinfectant is important tool to closely monitor effectiveness of the product to remove dangerous pathogens and microbes so as to eliminate causes of disease spread and illness. Disinfectant is generally used on different surfaces which are common contact points to sanitize the required area. However its efficiency, in terms of rate of killing microbes / pathogens vis- à-vis time required, is need to be monitored before launching the product or apply the product in day to day use. Generally common surfaces / touch points provide favourable conditions for the growth of microbes and viruses which are to be disinfected. Disinfectant validation studies are performed to demonstrate that the disinfectants used on the surfaces are effective in inactivation or removal of disease causing pathogens.

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**Procedural Details :** This particular project is done to see removal of microbial load when disinfectant is applied on wood surfaces such as office desk and other common contact points in the office area. It covers two studies – before loading and after loading. Different contact points of wood surfaces when sprayed with disinfectant and then exposed to touching of hands may kill or mitigate microbial loads that are transferred through human intervention (touching wood surfaces by different human beings). Experiments are conducted on randomized volunteers (without washing hands by sanitizers) by making them handle different touch points / contact points so as to study the potency of the said disinfectant. Similar experiments are conducted after loading microbial culture, purposely, on common touch points and then swabs are taken at regular time intervals. This is done to study potency of disinfectant to remove purposely spread microbial culture.

### **1) Before Loading :**

To study the efficacy, Disinfectant is sprayed on touch point / contact point of wooden surfaces i.e. Office table, which is normally being touched while working in to the office, also 1 sq. ft. X 1 sq. ft. area is selected for the same. Separate Swabs are taken before and after spraying disinfectant. Randomized volunteers (without washing hands by sanitizers) are allowed to touch the wooden surface. During the time, Swabs are taken at regular time intervals i.e. 2 hours, 4 hours, 6 hours, 8 hours and at 10 hours to study the presence of microbial load after free exposure of the said surface for users (touching desk frequently).

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**2) After Loading :**

To study the efficacy, Disinfectant is sprayed on wooden desk i.e. another working table where area of 1 sq. ft. X 1 sq. ft. area is selected for the same. Then the same marked area of the table is loaded purposely with Microbes i.e. microbial culture is spread on the marked area of the desk. Swabs are taken at regular time intervals to study the presence of microbial load before disinfectant treatment, after disinfectant treatment and after microbial load spraying. Swabs are taken at regularized time intervals i.e. after 2 hours, 4 hours, 6 hours, 8 hours and 10 hours to study efficacy of disinfectant after exposing the said wooden surfaces with fully loaded microbes (microbial culture of E.Coli)

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# Protocol followed :

Test Before Loading		
<b>Material</b>	<b>Wooden Table</b>	<b>Office Table with marked area of 1 sq.ft. X 1 sq.ft. which is used by staff for working</b>
<b>No. of tests</b>	<b>Test for E.Coli and TPC</b>	
1	Swab as such	Test
2	Spray Disinfectant on wooden table	After 1 min take a swab and test
3	Allow several people to touch the Table	Take a swab after 2 hours and test
4		Take a swab after 4 hours and test
5		Take a swab after 6 hours and test
6		Take a swab after 8 hours and test
7		Take a swab after 10 hours and test
Study efficacy of Disinfectant without Loading		

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# Protocol followed :

Test After Loading		
<b>Material</b>	<b>Wooden Table</b>	<b>Office Table with marked area of 1 sq.ft. X 1 sq.ft. which is used by staff for working</b>
<b>No. of tests</b>	<b>Test for E.Coli and TPC</b>	
1	Swab as such	Test
2	Spray Disinfectant on Wooden Table	After 1 min take a swab and test
3	Spray liquid having E.Coli culture on Table	After 1 min take a swab and test
4		Take a swab after 2 hours and test
5		Take a swab after 4 hours and test
6		Take a swab after 6 hours and test
7		Take a swab after 8 hours and test
8		Take a swab after 10 hours and test
Study efficacy of Disinfectant with Loading		

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# Results:

Before Loading			
Wood	Wooden Table which is being used frequently by people	TPC (cfu / swab)	E.Coli (cfu / swab)
Swab as such	Test	880	<10
Spray Disinfectant on Table	After 1 min take a swab and test	<10	<10
Allow several people to touch the Table	Take a swab after 2 hours and test	<10	<10
	Take a swab after 4 hours and test	<10	<10
	Take a swab after 6 hours and test	<10	<10
	Take a swab after 8 hours and test	<10	<10
	Take a swab after 10 hours and test	<10	<10
	<b>Percentage reduction (after allowing exposure to the surface)</b>	<b>98.80%</b>	-

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# Results:

After Loading			
Wood	Table which is not being used by people	TPC (cfu/ swab)	E.Coli (cfu/ swab)
Swab as such	Test	920	<10
Spray Disinfectant on Table	After 1 min take a swab and test	<10	<10
Spray liquid having E.Coli culture on Table	After 1 min take a swab and test	5.0 X10 <sup>3</sup>	4.8 X 10 <sup>3</sup>
	Take a swab after 2 hours and test	<10	<10
	Take a swab after 4 hours and test	<10	<10
	Take a swab after 6 hours and test	<10	<10
	Take a swab after 8 hours and test	<10	<10
	Take a swab after 10 hours and test	<10	<10
	<b>Percentage Reduction After loading Microbial culture</b>	<b>99.80%</b>	<b>99.79%</b>

## Conclusion :

The said disinfectant is efficient to remove microbes and pathogens from wood surfaces and its potency is valid upto 10 hours.

1) After deliberate exposure i.e. frequent human intervention to the wood surface, disinfectant sprayed is proven to be 98.8% efficient for removing microbes and pathogens. Its efficacy is valid for 10 hours.

2) Also after, purposely loading the wood surface with microbes, disinfectant is proven to eliminate the microbes and pathogens with 99.79% efficiency for a long duration of 10 hours.

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Testing before loading	TPC (cfu / swab)	E.Coli (cfu / swab)
Testing as such	910	<10
Swab after 1 min	<10	<10
Swab after 2 hours	<10	<10
Swab after 4 hours	<10	<10
Swab after 6 hours	<10	<10
Swab after 8 hours	<10	<10
Swab after 10 hours	<10	<10

## TPC and E.Coli reduction

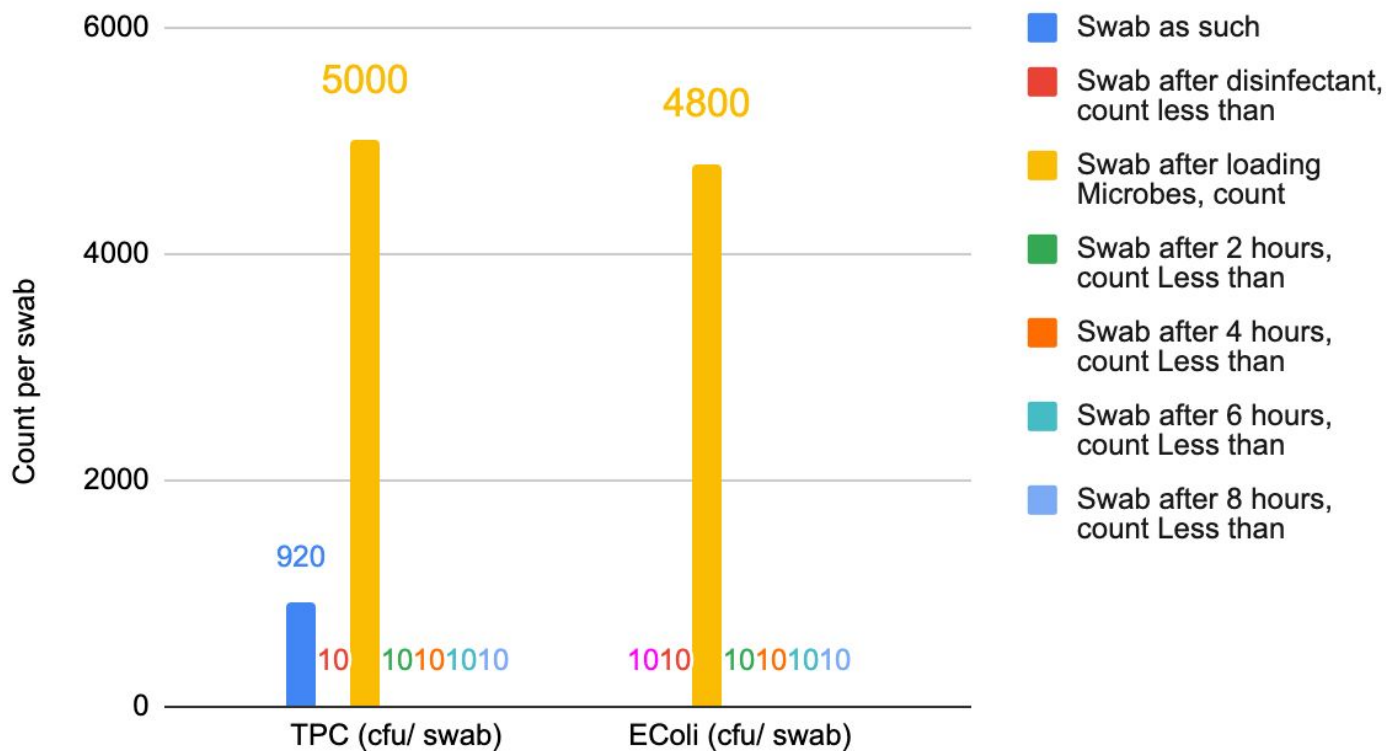


## Efficacy on Metal Surface before Loading

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Testing after loading	TPC (cfu / swab)	E.Coli (cfu / swab)
Swab as such	920	<10
Swab after disinfectant, count less than	<10	<10
Swab after loading Microbes, count	5000	4800
Swab after 2 hours	<10	<10
Swab after 4 hours	<10	<10
Swab after 6 hours	<10	<10
Swab after 8 hours	<10	<10
Swab after 10 hours	<10	<10

### TPC and EColi reduction



### Efficacy on Wooden Surface After Loading

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**Remarks :**

*The said disinfectant is efficient to remove microbes from wood surface and its potency is valid up to 10 hours after spraying.*

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