

# Determination of the *in vivo* long-lasting antimicrobial efficacy of film forming formulations containing Triclosan

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## Introduction

The long lasting bacteriostatic activity of film forming formulations (containing 1% and 5% Triclosan) have been determined under in-vivo finger print test conditions against gram-positive, gram-negative bacteria and yeast. For convenience the formulations were tested on the hands.

## Conclusion

The film forming formulations containing 1% and 5% Triclosan have an excellent antibacterial protection of the treated hands against the growth of a broad spectrum of pathogenic micro-organisms. The duration of the antimicrobial effect on the skin depends on the Triclosan concentration used in the film forming formulation. Whereas with the 1% Triclosan containing formulation an antibacterial effect up to 8 hours after the application have been achieved shows the 5% Triclosan containing formulation an effect over 24 hours after the application. The fact that the hands have been washed 10 times during the test period shows the excellent water resistant antibacterial effect achievable by the usage of the Triclosan containing Vevy Europe film forming. The use of Triclosan containing film forming hand rub results in a long-lasting protection of the hands from growing of pathogenic germs and can therefore reduce the risk of cross-contamination even hours after the application and also after several hand washings.

## Microbiological test methods

Finger print test

(Ciba method No. 145)

*Samples:*

Vevy Europe film forming (1% Triclosan)

Vevy Europe film forming (5% Triclosan)

*Test bacteria:*

Staphylococcus aureus ATCC 9144

Escherichia coli NCTC 8196

Candida albicans ATCC 10231

*Nutrient medium:*

Casein soy meal pepton agar

*Incubation:*

24 hours at 37°C

*Principle:*

1. The hands were wetted for 15 sec. under running tap water.
2. Hands were washed with a placebo soap, rinsed and dried.
3. Finger tips were pressed lightly on the solidified agar medium containing test bacteria. For preparation of the agar plates, 3.5 ml of a 1:1000 diluted over-night culture was added to 500 ml agar.
4. Subsequently hands were rubbed with 2 ml test formulation and dried.
5. The finger tips were pressed lightly on the prepared plates.
6. During the incubation phase, the antimicrobial substance is allowed to diffuse into the agar resulting in clear zones due to inhibition of the bacterial growth.

For testing the remanent effect, step 5 was repeated 8 and 24 hours after application of the product. During the test period, hands have been washed 10 times with a placebo soap.

Vevey Europe film forming with 1% Triclosan	Staphylococcus aureus ATCC 9144	Escherichia coli NCTC 8196	Candida albicans ATCC 10231
	VR	VR	VR
placebo	0/0	0/0	0/0
immediately after application	4/4	4/4	4/4
after 8 hours	4/4	4/4	0/0
after 24 hours	0/0	0/0	0/0

Vevey Europe film forming with 5% Triclosan	Staphylococcus aureus ATCC 9144	Escherichia coli NCTC 8196	Candida albicans ATCC 10231
	VR	VR	VR
placebo	0/0	0/0	0/0
immediately after application	4/4	4/4	4/4
after 8 hours	4/4	4/4	0/0
after 24 hours	4/4	4/4	0/0

Each test was performed twice and both results are given in the table.

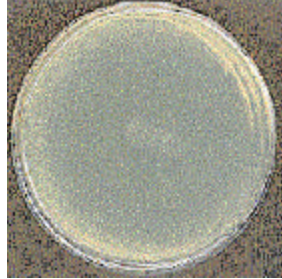
VR = Vinson rating; 0 = strong growth (no activity); 2 = moderate growth (good activity); 4 = no growth (very good activity)

**Vevy Europe film forming (1% Triclosan)**

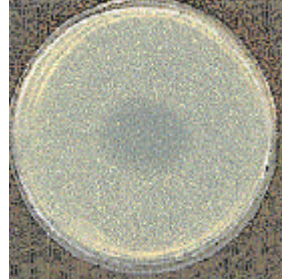
**1. Staphylococcus aureus ACT 9144**



placebo



immediately after application



8 hours after application

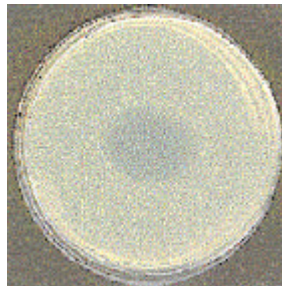


24 hours after application

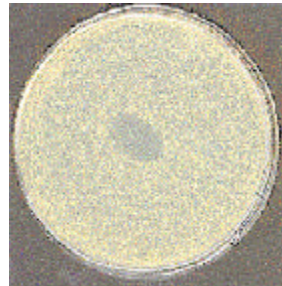
**2. Escherichia coli NCTC 8196**



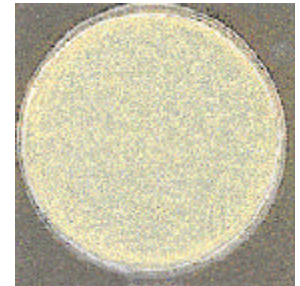
placebo



immediately after application

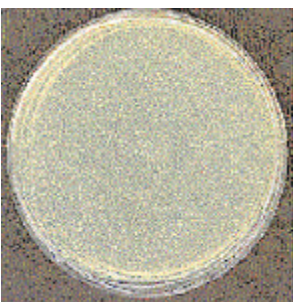


8 hours after application

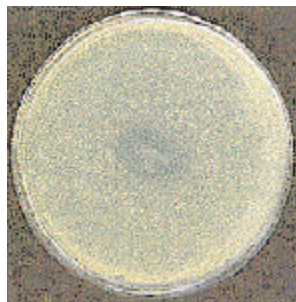


24 hours after application

**3. Candida albicans ATCC 10231**



Placebo



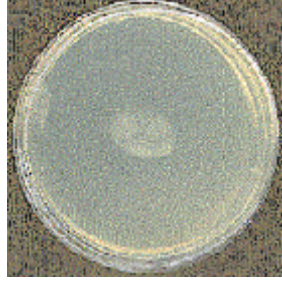
immediately after application

## Vevy Europe film forming (5% Triclosan)

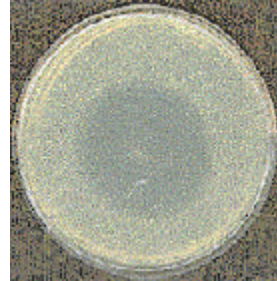
### 1. Staphylococcus aureus ACT 9144



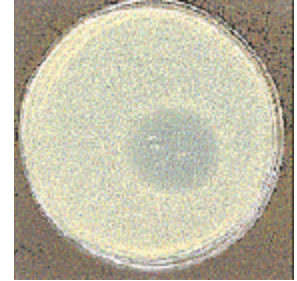
placebo



immediately after application



8 hours after applica-

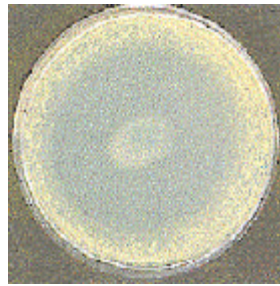


24 hours after application

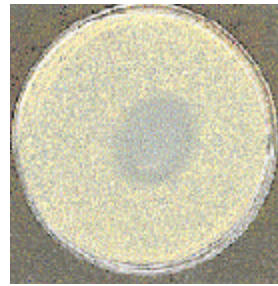
### 2. Escherichia coli NCTC 8196



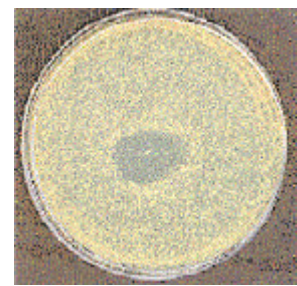
placebo



immediately after application

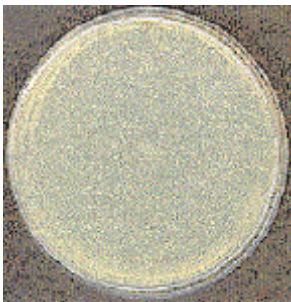


8 hours after application

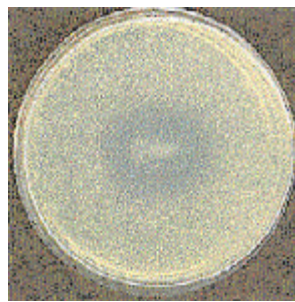


24 hours after application

### 3. Candida albicans ATCC 10231



placebo



immediately after application

The new elastic and resistant film forming tested here is Vevy codex 63.4300 and it is obtained

Ethanol 95°	676
Triclosan	10
Zedomine (Vevy codex 13.1250)	10

Glynsol (Vevy codex 03.3908) film former 300	
Dodecalene (Vevy codex 03.0203	1
<u>Salycuminol (Vevy codex 18.3726)</u>	<u>3</u>
<i>Total</i>	1000

**Method:** pH=4.84 at 17.9°C; 1+2+3+4+5+6 while well mixing.