



The influence of the test product on the key organisms of the respective body region was examined.

Information about the tested product:

Manufacturer:

Primient Covation LLC
198 Blair Blend Drive
Loudon, TN
United States of America



Name of the product:

Zemea® Propanediol 2% in PBS (v/v)

Product class:

- Sebaceous skin
MyMicrobiome Standard 18.10
- Moist skin
MyMicrobiome Standard 18.10
- Dry skin
MyMicrobiome Standard 18.10
- Scalp
MyMicrobiome Standard 19.10
- Infant skin
MyMicrobiome Standard 20.10
- Vaginal tract
MyMicrobiome Standard 21.10
- Feet
MyMicrobiome Standard 22.10
- Mouth
MyMicrobiome Standard 23.10
- Nasal mucosa
MyMicrobiome Standard 24.10

Sample receipt: June 10, 2021
Test date/period: June 11 - 22, 2021

Test result: 1.1
Approved yes/no: yes; June 22nd 2021



Test description

The MyMicrobiome Standard evaluates cosmetic and personal care products, that encounter the skin or mucous membrane, in terms of their influence on the microbiome located at a specific body site.

An intact skin microbiome has a fundamental influence on skin health. Products which are to be skin-friendly must also be Microbiome-friendly in order not to unbalance the skin of the user.

The MyMicrobiome Standard evaluates the influence of cosmetic and personal care products on the microbial key players of a specific skin or mucous membrane area. The human microbiome is very individual from person to person.

Each area, however, harbors a characteristic composition of bacteria, viruses and fungi. The test examines the products influence on the key organisms typical for each skin area and thus offers a standardized procedure.

Various aspects are examined:

The microbial quality of the product.

The influence of the product on the natural, healthy skin balance.

The skin-commensal bacterium *Staphylococcus epidermidis* keeps the skin with antimicrobial peptides (so-called bacteriocins) and pH adjustments healthy and keeps skin-harmful germs such as *Staphylococcus aureus* in check. The product should not disturb this balance between skin-friendly and skin-harmful bacteria. This sensitive balance is investigated in conjunction with the product.

The influence of the product on the bacterial diversity of the specific body region.

Each body region is colonized by a certain microbial composition. For a healthy skin it is particularly important to maintain this biodiversity. The influence of the product on the respective microbial mixture is examined in the test. The aim is to find as many key organisms as possible after contact with the product.

The influence of the product on the growth behavior of the microbes of the specific body region.

In addition to the diversity of the specific microbiome, the growth or number of different key organisms should not be influenced by the product. This is investigated in a skin-product contact model. The key organisms are brought into **direct** and **indirect** contact with the product and their growth is observed.

Results

The microbial quality of the product.

The prerequisite for the test for microbial friendliness is the microbiological quality of the product. The following table contains the limit values that must be observed.

Types of organisms	Limit values	
	Products specially designed for children under 3 years, eye area or mucous-skins	Other products
Total counts mesophilic, aerobic microorganisms (bacteria, yeasts, molds, (TAMC and TYMC))	$\leq 1 \times 10^2$ cfu/g or ml ^a	$\leq 1 \times 10^3$ cfu/g or ml ^b
<i>Escherichia coli</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Pseudomonas aeruginosa</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Staphylococcus aureus</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml
<i>Candida albicans</i>	Not detectable in 1g or 1 ml	Not detectable in 1g or 1 ml

a >200 cfu/g or ml, b >2000 cfu/g or ml

Results Microbiological quality:

Determination of TAMC, TYMC, absence of *E. coli*, *P. aeruginosa* and *S. aureus*.

Parameter	Sample no.: 210.622.22
TAMC [cfu/0,1 ml]	< 1,0E+01
TYMC (incl. <i>Candida albicans</i>) [in 0,1 ml]	negative
<i>Escherichia coli</i> [in 0,1 ml]	negative
<i>Pseudomonas aeruginosa</i> [in 0,1 ml]	negative
<i>Staphylococcus aureus</i> [in 0,1 ml]	negative

The microbiological quality of the product according to DIN EN ISO 17516 is fulfilled.

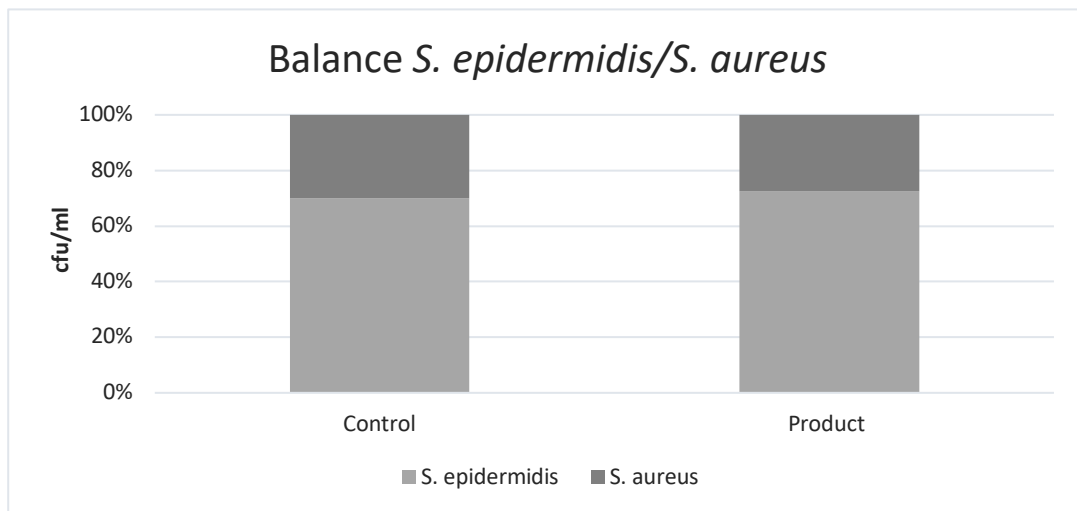


Results

The influence of the product on the natural, healthy skin balance.

A co-culture of *S. epidermidis* and *S. aureus* is incubated with the product. The ratio of the two microbes to each other is determined.

Determination of the bacterial count at time t = 4 h.



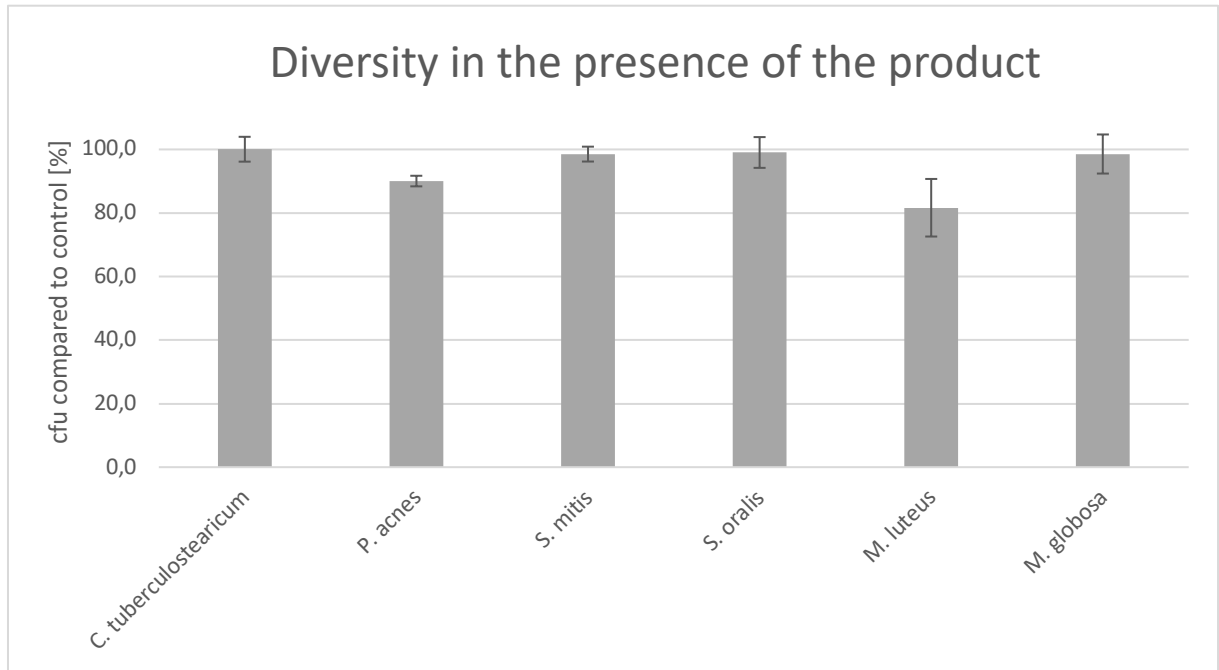
	cfu/ml		Ratio Product/ Control	Grade
	<i>S. epidermidis</i>	<i>S. aureus</i>		
Control	1.6E+02	7.0E+01	1.1	1.0
Product	1.8E+02	6.7E+01		



Results - DRY SKIN -

The influence of the product on the microbial diversity of the specific body region.

A co-culture of key organisms of the specific body region is incubated with the product for 4 h. The ratio of the bacteria compared to the control (PBS) is determined.



Key-Microbe	t=	4 h	Rating
	cfu/ml		
<i>C. tuberculostearicum</i>	Control	2.4E+03	1.0
	Product	2.4E+03	
<i>P. acnes</i>	Control	3.3E+03	1.0
	Product	3.0E+03	
<i>S. mitis</i>	Control	2.4E+03	1.0
	Product	2.4E+03	
<i>S. oralis</i>	Control	1.6E+03	1.0
	Product	1.6E+03	
<i>M. luteus</i>	Control	1.4E+03	2.0
	Product	1.1E+03	
<i>M. globosa</i>	Control	1.2E+03	1.0
	Product	1.1E+03	
Overall rating:			1.2

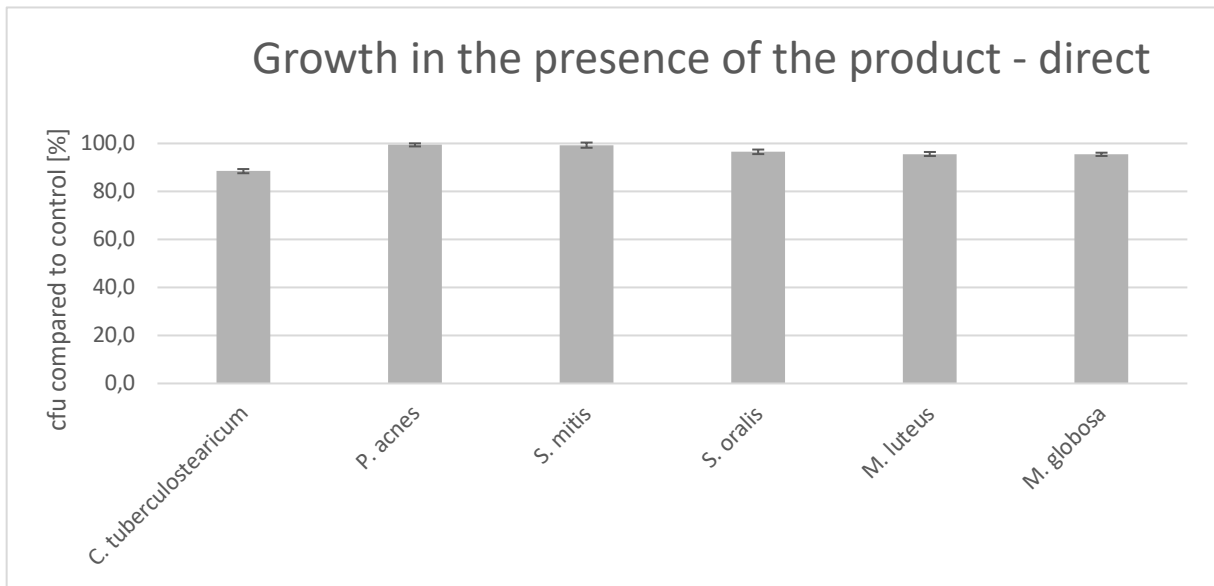




Results - DRY SKIN -

The influence of the product on the growth behavior of the microbes of the specific body region - directly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). Product contact with the microorganisms is directly.



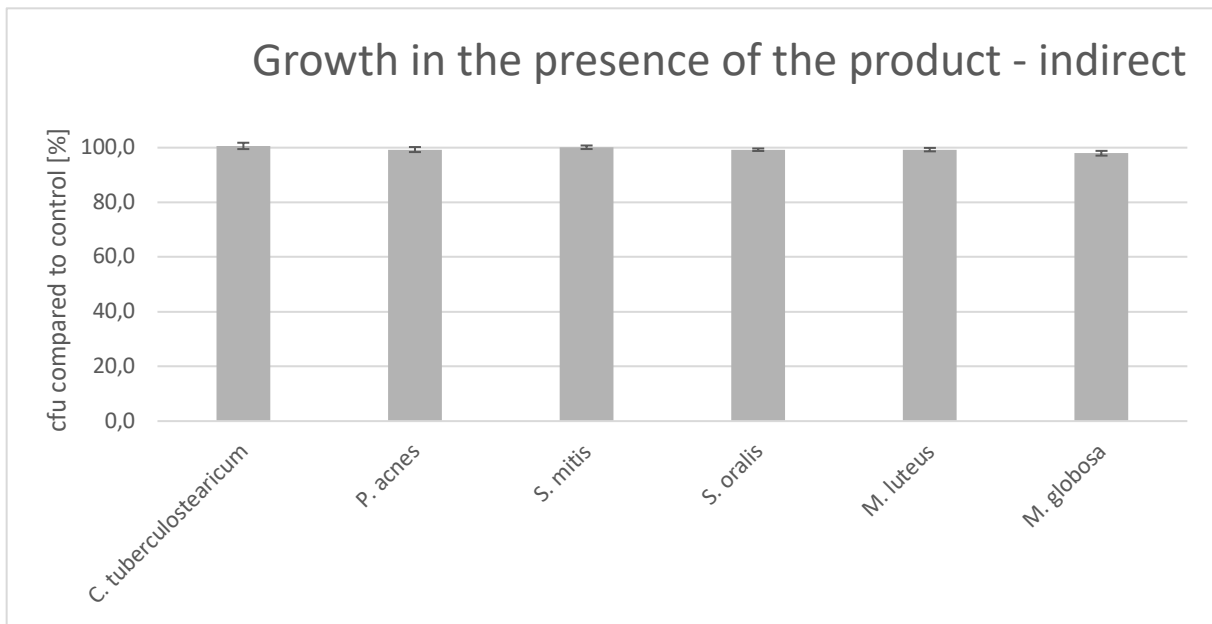
Key-Microbe	cfu /Plate		Rating
<i>C. tuberculoostearicum</i>	Control	1040.0	2
	Product	920.0	
<i>P. acnes</i>	Control	1326.7	1
	Product	1318.7	
<i>S. mitis</i>	Control	936.0	1
	Product	929.3	
<i>S. oralis</i>	Control	878.7	1
	Product	848.0	
<i>M. luteus</i>	Control	758.7	1
	Product	725.3	
<i>M. globosa</i>	Control	941.3	1
	Product	898.7	
Overall rating:			1.2



Results - DRY SKIN -

The influence of the product on the growth behavior of the microbes of the specific body region - indirectly.

The influence of the product on the growth of each individual microbe of the key organisms of the specific body region is investigated and put in relation to the control (PBS). The product contact to the microorganisms is indirect.



Key-Microbe	cfu /Plate		Rating
<i>C. tuberculoostearicum</i>	Control	1048.0	1
	Product	1054.7	
<i>P. acnes</i>	Control	1340.0	1
	Product	1330.7	
<i>S. mitis</i>	Control	940.0	1
	Product	941.3	
<i>S. oralis</i>	Control	878.7	1
	Product	872.0	
<i>M. luteus</i>	Control	738.7	1
	Product	733.3	
<i>M. globosa</i>	Control	978.7	1
	Product	958.7	
Overall rating:			1.0





Results

The results are evaluated with grades from 1 (one) to 3 (three). If the product shows no or positive influence on the above-mentioned aspects, a grade of 1 is awarded, respectively.

If only a very weak negative influence can be detected in the tests, the grade 2 is awarded and in case of a clearly negative influence, the product receives the grade 3.

The product has passed up to grade 1.1

Here the grade means

1 = Microbiome-friendly 2 = Microbiome-neutral 3 = Microbiome-damaging.

Test	Grade
Balance of the skin microbiome	1.0
Diversity of the corresponding skin microbiome (x2)	1.2
Skin-product contact direct (x2)	1.2
Skin-product contact indirect	1.0
Overall grade	1.1

With an overall grade of 1.1 the seal „Microbiome-friendly“ is awarded according to MyMicrobiome Standard 18.10.

Place, Date: Balzers, June 22th, 2021

Responsible person: Dr. Kristin Neumann

Signature: