

TECHNICAL SERVICE REPORT NO. 88219

PHARMAID (COSMOCHEM CHEMICALS)

December 2019

Client:

PHARMAID (COSMOCHEM CHEMICALS)

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SAMPLES

- 1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%
- 2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative
- 3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%
- 4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative

EXAMINATIONS

Measurement of pH: **Thor Test Method No 725**

Screening for Microbial Contamination: **Thor test Method Thor No 201**

Personal Care Preservative Efficacy Test (Streak plate method) - **Thor Test Method No 206**

PROCEDURE

Procedure TM 725 - Measurement of pH

A pH electrode is calibrated with three standard buffer solutions. After the calibration, the pH value of the sample can be determined.

Procedure TM 201 - Screening of Microbial Contamination

After homogenization, a sterilized loop is used to pick up a small portion of the sample and spread it in petri dishes containing the appropriate cultural media (Nutrient Agar, OGYE Agar, Saboraud Dextrose Agar, SIM medium) to allow the growth of, respectively, bacteria, yeasts, moulds and sulphate reducing bacteria. In this way, the microorganism growth can be separately assessed. The petri dishes and SIM tubes are incubated under the appropriate conditions. For bacteria detection, Nutrient Agar plate, 24-48h at 30 +/- 2°C. For yeasts and moulds detection, OGYE Agar and SDA plates, 48-72h at 26 +/- 2°C. For sulphate reducing bacteria detection, SIM tubes, 48-72h at 30 +/- 2°C. After incubation, the microbial growth is visually evaluated. Appropriate scales are used to determine the extent of the growth in the sample.

Procedure TM 206 – Personal Care Preservative Efficacy Test (Streak plate method)

The test method comprises the inoculation of a product with blended microbial cultures of known strains (pools) and enumerate the remaining microorganisms at set time points, over a period of 28 days incubation at constant temperature, by streaking onto selective agar plates (TSA or Nutrient agar, for bacteria, and Malt agar for yeasts and moulds). Density growth on the streak is determined by using a subjective numerical rating scale.

It is considered a hard test, created to evaluate the efficacy and the resistance of the preservation system. Depending on the needs in satisfying local Norms (Pharmacopeia or any microbiological test), it is possible, for certain formulation, to pass a challenge test only focused on the speed of a preservation system to reduce the microbial content.

A set of acceptance criteria based on reduction in viability are used to interpret the results.

It is recommended to test three groups of microorganisms:

Pool 1 – Bacteria

Pseudomonas aeruginosa ATCC 9027
Pseudomonas putida ATCC 31483
Burkholderia cepacia ATCC 25416
Klebsiella pneumoniae ATCC 10031
Enterobacter gergoviae ATCC 33028
Escherichia coli ATCC 8739
Staphylococcus aureus ATCC 6538
Staphylococcus epidermidis ATCC 12228

Pool 2 – Yeast

Candida albicans ATCC 10231
Candida parapsilosis ATCC 22019

Pool 3 - Mould

Aspergillus brasiliensis (niger) ATCC 16404
Talaromyces pinophilus (*P. pinophilum*)
ATCC 36839

The microorganism suspensions are prepared in Tryptone and Fisiological solution, for bacteria and yeast, and in Tryptone with Polysorbate 80 for moulds.

RESULTS

Measurement of pH (TM 725)

SAMPLE	pH
1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%	6.90
2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative	6.93
3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%	5.67
4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative	5.69

Screening of Microbial Contamination (TM 201)

SAMPLE	Growth Rating			
	BACTERIA	MOULDS	YEASTS	SULPHATE REDUCING BACTERIA
	30°C	25°C	25°C	30°C
1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%	0	0	0	-
2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative	0	0	0	-
3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%	0	0	0	-
4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative	0	0	XXX	-

Growth assessment scale :

Surface of growth on agar (bacteria and yeast)

- 0 No growth
- 1 Minimal growth, 1 to 10 visible colonies
- 2 Slight growth, up to 100 colonies
- 3 Significant growth, up to 300 to 400 colonies
- 4 Strong growth, separated colonies remain visible > 400 colonies
- 5 Very strong growth, too many colonies to count but not covering the entire surface
- 6 Total growth, the colonies are virtually inseparable and cover the entire surface

Surface of growth on agar (moulds)

- 0 No growth
- X Slight growth
- XX Significant growth
- XXX Strong growth
- XXXX Very strong growth



Personal Care Preservative Efficacy Test (Streak plate method) (TM 206)

Results for the bacteria

Bacterial Challenge				
<i>Inoculum (CFU/ml)</i>	1 st	2 nd	3 rd	4 th
<i>Viable Count</i>	4.4 x 10 ⁸	3.9 x 10 ⁸	5.2 x 10 ⁸	2.9 x 10 ⁸

Test Sample	Evaluation of Bacteria growth:								
	1st inoculation		2nd inoculation		3rd inoculation		4th inoculation		
	6°d	12°d	6°d	12°d	6°d	12°d	6°d	12°d	18°d
1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%	0		0		0		0		
2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative	6	6	Contaminated						
3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%	0		0		0		0		
4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative	Not tested (received contaminated)								

 Not tested



Results for the yeasts

Yeasts Challenge				
Inoculum (CFU/ml)	1 st	2 nd	3 rd	4 th
Viable Count	2.9 x 10 ⁷	2.6 x 10 ⁷	2.9 x 10 ⁷	1.7 x 10 ⁷

Test Sample	Evaluation of Yeasts growth:								
	1 st inoculation		2 nd inoculation		3 rd inoculation		4 th inoculation		
	6°d	12°d	6°d	12°d	6°d	12°d	6°d	12°d	18°d
1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%	0		0		0		0		
2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative	2		4	4	Contaminated				
3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%	0		0		0		0		
4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative	Not tested (received contaminated)								

 Not tested



Results for the mould

Fungi Challenge	
Viable Count	4.6 x 10 ⁷

Sample tested	After 14 days:		After 28 days:	
	Fungal surface development	Control of viable spores (malt development)	Fungal surface development	Control of viable spores (malt development)
1) PHARMAID 2 in1 Panthenol After Sun Lotion- MICROCARE DB 1,10%	0	0	0	0
2) PHARMAID 2 in1 Panthenol After Sun Lotion- no preservative	0	XX	0	XX
3) DREAM TAN Moisturising Lotion Aloe Vera After Sun- MICROCARE PEHG 1,10%	0	0	0	0
4) DREAM TAN Moisturising Lotion Aloe Vera After Sun- no preservative	Not tested (received contaminated)			

Growth assessment scale :

BACTERIA / YEASTS

Surface of growth on agar

- 0 No growth
- 1 Minimal growth, 1 to 10 visible colonies
- 2 Slight growth, up to 100 colonies
- 3 Significant growth, up to 300 to 400 colonies
- 4 Strong growth, separated colonies remain visible > 400 colonies
- 5 Very strong growth, too many colonies to count but not covering the entire surface
- 6 Total growth, the colonies are virtually inseparable and cover the entire surface

MOULDS

Development on the Surface	Fungal Development
0 no growth	0 No growth
+ growth	X Slight growth
	XX Significant growth
	XXX Strong growth
	XXXX Very strong growth

INTERPRETATION OF RESULTS

To validate a preservative system, it must be capable of withstanding a minimum of 1 successive inoculations and reduce levels of microorganisms to a maximum value of 3 on the rating scale of bacteria and yeasts and must not show signs of fungal development on the surface nor remaining surviving spores on the streaked plates superior to 2X on the rating scale after 28 days of incubation. A sample is considered contaminated if the content of microorganisms is ≥ 4 on the rating scale after 14 days incubation for bacteria and yeasts.

In any case, the acceptance criteria are to be discussed with the customer depending on the security level they required.



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Please note that unless otherwise stated, the conclusions and any recommendations, either made or implied, are based on information drawn from examination of the samples identified in this report only. Since these may be influenced by, for example, infection level variations in raw materials, stored component solutions and manufacturing equipment, it is recommended that some appropriate monitoring of microbiological properties be carried out. Use biocides safely. Always read the label and product information before use.