



TECHNICAL SERVICE REPORT NO. 04219

PHARMAID (COSMOCHEM CHEMICALS)

March 2019

Client:

PHARMAID
(COSMOCHEM CHEMICALS)

Test Laboratory:

Technical Service Laboratory
Thor Specialties
Via Del Pontaccio,2
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SAMPLES

- 1) Body Scrub Gel Aloe Vera 200ml (Athena's Treasure)- MICROCARE® CB 0,15%
- 2) Body Scrub Gel Aloe Vera 200ml (Athena's Treasure)- BLANK
- 3) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- MICROCARE® DB 1,1%
- 4) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- BLANK
- 5) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- MICROCARE® PEHG 1% 1%
- 6) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- BLANK
- 7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%
- 8) Body Cream Natural 150ml (Athena's Treasures)- BLANK
- 9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%
- 10) Body Lotion Aloe Vera 250ml (Athena's Treasure)- BLANK
- 11) Conditioner For Dry 250ml (Aloe Treasures)- MICROCARE® CB 0,15%
- 12) Conditioner For Dry 250ml (Aloe Treasures)- BLANK
- 13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARE® PEHG 1,1%
- 14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK
- 15) Foot Cream Olive Oil 120ml (Aloe Treasures)- MICROCARE® PEHG 1,1%
- 16) Foot Cream Olive Oil 120ml (Aloe Treasures)- BLANK
- 17) Anti Age Facial Cream 50ml (Aloe Treasures)- MICROCARE® PEHG 1,1%
- 18) Anti Age Facial Cream 50ml (Aloe Treasures)- BLANK
- 19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARE® DB 1,1%
- 20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK

EXAMINATIONS

Measurement of pH and Redox Potential: **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 and Redox Potential

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

Reduction potential (also known as redox potential) is a measure of the tendency of a sample to acquire electrons and thereby be reduced; the more positive the potential is, the greater is the sample's affinity for electrons and tendency to be reduced. Redox determination is performed using an appropriate electrode capable of reading the potential in mV.

The redox electrode accuracy is evaluated and checked with a standard solution.

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 Physiological solution for bacteria and yeast, in physiological plus Polysorbate 80 for moulds .

RESULTS

Measurement of pH and Redox Potential (TM 725)

SAMPLE	pH	Redox
1) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasure)- MICROCARE® CB 0,15%	4.47	283
2) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasure)- BLANK	4.50	290
3) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- MICROCARE® DB 1,1%	5.32	261
4) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- BLANK	5.33	270
5) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- MICROCARE® PEHG	5.68	213
6) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- BLANK	5.62	218
7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	5.40	224
8) Body Cream Natural 150ml (Athena's Treasures)- BLANK	5.38	232
9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	5.38	250
10) Body Lotion Aloe Vera 250ml (Athena's Treasure)- BLANK	5.34	252
11) Conditioner For Dry 250ml (Aloe Treasures)- MICROCARE® CB 0,15%	4.99	302
12) Conditioner For Dry 250ml (Aloe Treasures)- BLANK	5.01	311
13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	5.10	233
14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK	5.11	232
15) Foot Cream Olive Oil 120ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	7.00	189
16) Foot Cream Olive Oil 120ml (Aloe Treasures)- BLANK	7.01	189
17) Anti Age Facial Cream 50ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	5.90	242
18) Anti Age Facial Cream 50ml (Aloe Treasures)- BLANK	5.92	251
19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARE® DB 1,1%	5.28	244
20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK	5.29	245

Screening of Microbial Contamination (TM 201)

SAMPLE	Growth Rating			
	BACTERIA	MOULDS	YEASTS	SULPHATE REDUCING BACTERIA
	30°C	25°C	25°C	30°C
1) Body Scrub Gel Aloe Vera 200ml (Athena's Treasures)- MICROCARE® CB 0,15%	0	0	0	-
2) Body Scrub Gel Aloe Vera 200ml (Athena's Treasures)- BLANK	0	0	0	-
3) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- MICROCARE® DB 1,1%	0	0	0	-
4) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- BLANK	0	0	0	-
5) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- MICROCARE® PEHG	0	0	0	-
6) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- BLANK	0	0	0	-
7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0	0	0	-
8) Body Cream Natural 150ml (Athena's Treasures)- BLANK	0	0	0	-
9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0	0	0	-
10) Body Lotion Aloe Vera 250ml (Athena's Treasures)- BLANK	0	0	0	-

SAMPLE	Growth Rating			
	BACTERIA	MOULDS	YEASTS	SULPHATE REDUCING BACTERIA
	30°C	25°C	25°C	30°C
11) Conditioner For Dry 250ml (Aloe Treasures)-MICROCARE® CB 0,15%	0	0	0	-
12) Conditioner For Dry 250ml (Aloe Treasures)-BLANK	0	0	0	-
13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0	0	0	-
14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK	0	XXXX	0	-
15) Foot Cream Olive Oil 120ml (Aloe Treasures)-MICROCARE® PEHG 1,1%	0	0	0	-
16) Foot Cream Olive Oil 120ml (Aloe Treasures)-BLANK	0	XXXX	0	-
17) Anti Age Facial Cream 50ml (Aloe Treasures)-MICROCARE® PEHG 1,1%	0	0	0	-
18) Anti Age Facial Cream 50ml (Aloe Treasures)-BLANK	0	0	0	-
19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARE® DB 1,1%	0	0	0	-
20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK	0	0	0	-

Growth assessment scale :

Notation 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 (mould)

- 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				
Inoculum (CFU/ml)	1 st	2 nd	3 rd	4 th
Viabie Count	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:								
	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) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasures)- MICROCARE® CB 0,15%	0		0		0		0		
2) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasures)- BLANK	0		0		1		1	1	
3) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- MICROCARE® DB 1,1%	0		0		0		0		
4) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- BLANK	5	6	Not tested (contaminated)						
5) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- MICROCARE® PEHG	0		0		0		0		
6) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- BLANK	0		0		1		1	1	
7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
8) Body Cream Natural 150ml (Athena's Treasures)- BLANK	3		6	6	Not tested (contaminated)				
9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
10) Body Lotion Aloe Vera 250ml (Athena's Treasure)- BLANK	0		0		3		3	3	



Test Sample	Evaluation of Bacteria 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
11) Conditioner For Dry 250ml (Aloe Treasures)- MICROCARE® CB 0,15%	0		0		0		0		
12) Conditioner For Dry 250ml (Aloe Treasures)- BLANK	0		4	6	Not tested (contaminated)				
13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARÉ® PEHG 1,1%	0		0		0		0		
14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK	Not tested (contaminated)								
15) Foot Cream Olive Oil 120ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
16) Foot Cream Olive Oil 120ml (Aloe Treasures)- BLANK	Not tested (contaminated)								
17) Anti Age Facial Cream 50ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
18) Anti Age Facial Cream 50ml (Aloe Treasures)- BLANK	1		1		1		2		
19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARÉ® DB 1,1%	0		0		0		0		
20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK	5	6	Not tested (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) Body Scrub Gel Aloe Vera 200ml (Athena's Treasures)- MICROCARE® CB 0,15%	0		0		0		0		
2) Body Scrub Gel Aloe Vera 200ml (Athena's Treasures)- BLANK	0		0		0		0		
3) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- MICROCARE® DB 1,1%	0		0		0		0		
4) Anti Wrinkle Facial Cream 50ml (Athena's Treasures)- BLANK	4	3	5	6	Not tested (contaminated)				
5) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- MICROCARE® PEHG	0		0		0		0		
6) After Sun Body Gel Aloe Vera 65ml (Athena's Treasures)- BLANK	0		0		0		0		
7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
8) Body Cream Natural 150ml (Athena's Treasures)- BLANK	3		5	5	Not tested (contaminated)				
9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
10) Body Lotion Aloe Vera 250ml (Athena's Treasure)- BLANK	5	5	Not tested (contaminated)						



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
11) Conditioner For Dry 250ml (Aloe Treasures)- MICROCARE® CB 0,15%	0		0		0		0		
12) Conditioner For Dry 250ml (Aloe Treasures)- BLANK	0		0		0		0		
13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARÉ® PEHG 1,1%	0		0		0		0		
14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK	Not tested (contaminated)								
15) Foot Cream Olive Oil 120ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
16) Foot Cream Olive Oil 120ml (Aloe Treasures)- BLANK	Not tested (contaminated)								
17) Anti Age Facial Cream 50ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0		0		0		0		
18) Anti Age Facial Cream 50ml (Aloe Treasures)- BLANK	5	5	Not tested (contaminated)						
19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARÉ® DB 1,1%	0		0		0		0		
20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK	6	6	Not tested (contaminated)						

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Results for the mould

Fungi Challenge	
<i>Viabile Count</i>	4.6×10^7

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) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasure)- MICROCARE® CB 0,15%	0	0	0	0
2) Body Scrub Gel Aloe Vera 200ml (Athena´s Treasure)- BLANK	0	0	0	0
3) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- MICROCARE® DB 1,1%	0	0	0	0
4) Anti Wrinkle Facial Cream 50ml (Athena´s Treasures)- BLANK	0	0	0	0
5) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- MICROCARE® PEHG	0	0	0	0
6) After Sun Body Gel Aloe Vera 65ml (Athena´s Treasures)- BLANK	0	0	0	XXXX
7) Body Cream Natural 150ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0	0	0	0
8) Body Cream Natural 150ml (Athena's Treasures)- BLANK	0	0	0	XXXX
9) Body Lotion Aloe Vera 250ml (Athena's Treasures)- MICROCARE® PEHG 1,1%	0	0	0	0
10) Body Lotion Aloe Vera 250ml (Athena's Treasure)- BLANK	0	0	0	XXXX



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)
11) Conditioner For Dry 250ml (Aloe Treasures)- MICROCARE® CB 0,15%	0	0	0	0
12) Conditioner For Dry 250ml (Aloe Treasures)- BLANK	0	0	0	0
13) Body Cream Exotic Fruits 150ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0	0	0	0
14) Body Cream Exotic Fruits 150ml (Aloe Treasures)- BLANK	Not tested (contaminated)			
15) Foot Cream Olive Oil 120ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0	0	0	0
16) Foot Cream Olive Oil 120ml (Aloe Treasures)- BLANK	Not tested (contaminated)			
17) Anti Age Facial Cream 50ml (Aloe Treasures)- MICROCARE® PEHG 1,1%	0	0	0	0
18) Anti Age Facial Cream 50ml (Aloe Treasures)- BLANK	0	0	0	XXX
19) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- MICROCARE® DB 1,1%	0	0	0	0
20) Allergaid Cream Tea Tree 50ml (Pharmaid Treasures)- BLANK	0	0	0	X



Growth assessment scale :

BACTERIA / YEASTS

Notation	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

MOULD

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.

06.03.2019

Technical Manager
Katia Padoan

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.

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