TRUE TESTING SERVICES
TTS LABORATUVAR HİZMETLERİ

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-1802-T

MICROBIOLOGICAL PRESERVATIVE EFFICACY (CHALLENGE) TEST REPORT

AB-1802-T
TTS-0000906
03 - 26

Report No. / Report Date / Rev. No :	:	TTS-0000906/23.03.2026/00
Company Name	:	Royal Pharma İlaç Kozmetik Gıda San. A.Ş.
Company Address	:	Beylikdüzü OSB Mah. Mustafa Kurtoğlu Cad. No:31 Kat:5 Beylikdüzü/İSTANBUL
Sample Receipt Date	:	26.01.2026
Request / Quotation Number	:	TTS-26030144
Sample Name	:	Gaoben Serum
Sample Packaging Type	:	Original
Sample Batch / Lot Number	:	5SPSN01
Sample Manufacturing Date & Expiry Date	:	-/ 01.05.2028
Sample Quantity	:	30 Ml*12
Sample Storage Conditions	:	25°C
Analysis Start & Completion Dates	:	26.01.2026 / 28.02.2026

PRESERVATIVE EFFICACY (CHALLENGE) TEST RESULTS

Strains of Test Microorganisms[1]	Amount Inoculated cfu/ml (N)	Microorganism Count of the Sample cfu/.mL [Nx = C / (Vxd)]				Log Reduction Value Rx = ($\log N_0 - \log N_x$)			TEST RESULT EVALUATİON
		N_0	N_7	N_{14}	N_{28}	R_7	R_{14}	R_{28}	
E.coli ATCC 8739	$1,4 \times 10^7$	$1,4 \times 10^5$	<10	<10	<10	>4,13	>4,13	>4,13	PASS
S. aureus ATCC 6538	$1,6 \times 10^7$	$1,6 \times 10^5$	<10	<10	<10	>4,21	>4,21	>4,21	PASS
P. aeruginosa ATCC 9027	$1,4 \times 10^7$	$1,4 \times 10^5$	<10	<10	<10	>4,13	>4,13	>4,13	PASS
C.albicans ATCC 10231	$1,8 \times 10^6$	$1,8 \times 10^4$	<10	<10	<10	>3,25	>3,25	>3,25	PASS
A.brasiliensis ATCC 16404	$1,4 \times 10^6$	$1,4 \times 10^4$	X	<10	<10	X	>3,14	>3,14	PASS

Criteria:
N value must be between $1.0 \times 10^7 - 1.0 \times 10^8$ ($7.0 \leq \log N \leq 8.0$) for nacteria.
N value must be between $1.0 \times 10^6 - 1.0 \times 10^7$ ($6.0 \leq \log N \leq 7.0$) for *C. albicans* and *A. brasiliensis*. $N_0 = N/100$
N_0 = N/100. The inoculation volume / sample amount is 0.2 mL / 20 g.
[1]The incubation temperature of the microorganism-inoculated sample is 22.5°C.The incubation temperature for microorganisms cultured on TSA and SDA media is 32.5°C.The incubation temperature for microorganisms cultured on PDA medium is 22.5°C

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Challenge Test — Preservative Effectiveness Evaluation Limits[a]								
Microorganisms	**Bacteria**			***C. albicans***			***A. brasiliensis***	
Sampling time	**T7**	**T14**	**T28**	**T7**	**T14**	**T28**	**T14**	**T28**
Criteria A	≥ 3	≥ 3 ve NI^b	≥ 3 *ve NI*[b]	≥ 1	≥ 1 *ve NI*	≥ 1 *ve NI*	$\geq 0^c$	≥ 1 *ve NI*
Criteria B	X	≥ 3	≥ 3 *ve NI*	X	≥ 1	≥ 1 *ve NI*	≥ 0	≥ 0 *ve NI*

a. In this test, an acceptable range of deviation of 0,5 log is accepted
b. NI indicates that there is no increase in the microorganism count compared to the previous contact time.
c. When log N_0 = log N_x, then R_x = 0 (no increase after the initial count).

PRESERVATİVE EFFİCACY (CHALLENGE) TEST – ANALYSİS CONTROL RESULTS[2]					
Applied Method / Culture Technique	Pour Plate, Spread Plate		**Neutralizing Agents**	D/E Neutralizing Broth	
Strains of Test Microorganisms[1]	**Inoculum Control (N_V)**	**Control Analysis**	**Test Analysis (N_{Vf})**	**Criteria**	**Criteria Evaluation**
E.coli ATCC 8739	112	124	132	$N_{Vn} \geq 0{,}5xN_{Vf}$ $N_V \approx N_V$	VALID
S. aureus ATCC 6538	109	120	130		VALID
P. aeruginosa ATCC 9027	110	127	134		VALID
C.albicans ATCC 10231	116	135	140		VALID
A.brasiliensis ATCC 16404	101	124	131		VALID

[2]The results represent the evaluation of the data obtained regarding the effectiveness of the neutralizer and the validity of the method.

REMARKS AND EVALUATİONS
Analysis results were evaluated according to the microbiological limits specified in the standard "TS EN ISO 11930 Cosmetics - Microbiology - Evaluation of the Antimicrobial Protection of a Cosmetic Product".

TTS Laboratuvar Hizmetleri İthalat İhracat San. ve Tic. Ltd. Şti., operating as an experimental laboratory, is accredited by TÜRKAK under registration number AB-1802-T according to the TS EN/ISO IEC 17025:2017 standard. The Turkish Accreditation Agency (TÜRKAK) is a signatory to the European Cooperation for Accreditation (EA) Multilateral Agreement (MLA) and the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

1. The test results are valid for the sample detailed above.
2. This Test Report may not be partially copied or reproduced without the written permission of TTS Lab. Hiz. İth. İhr. San. ve Tic. Ltd. Şti. No section may be used independently or separately.
3. Test reports without signature and stamp are invalid.
4. Analyses marked with "*" are included within our scope accredited by TÜRKAK according to TS EN ISO/IEC 17025.
5. The test results presented in this report do not include "Measurement Uncertainty" values. Measurement uncertainty has not been considered in the provided test results or in the "Pass/Fail" evaluation based on these results. If measurement uncertainty is used in calculations, it will be indicated separately. The decision rule for considering measurement uncertainty in the compliance evaluation of microbiological analysis results has been assessed according to the "TS 13134 Microbiology Laboratory Accreditation – Guide for Implementation of TS EN 17025 Standard" and is not applicable here.
6. Information provided by the customer is considered as customer declaration. The laboratory is not responsible for sample collection and transportation processes.
7. The test results are valid for the condition of the sample received by the laboratory. The laboratory does not accept responsibility for customer-supplied information.
8. If the sample to be analyzed does not meet the sample acceptance criteria, a Waiver Statement is obtained from the customer, and upon customer request, the sample may be conditionally accepted for analysis. The reason for obtaining the Waiver Statement is indicated in the "Remarks & Commentary On The Report" section of the report.
9. Unless specified otherwise by the customer, our laboratory applies a simple decision rule without considering measurement uncertainty. Detailed information can be provided upon request.
10. Abbreviations: P: Pass, F: Fail, NE: Not Evaluated, NA: Not Analyzed
11. The customer is responsible for the information provided during the analysis request process. Sample identification and product name have been recorded in the report according to the information provided by the customer.

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APPROVED
23/03/2026