

Test Report

Client RAYCOP JAPAN INC.

General Incorporated Foundation,
Japan Food Research Laboratories
52-1, Motoyoyogi-cho, Shibuya-ku,
Tokyo, JAPAN

Specimen RTP-100

A company seal

Title Sterilization effect test

Here is a report on test results of the above specimen that was submitted to our center on March 16, 2018.

When you publish this report somewhere, please follow our center's rules.

Sterilization effect test

1. Client

RAYCOP JAPAN INC.

2. Specimen

RTP-100

A bed pad [outer fabric: polyester 80%, cotton 20%; inner cotton: polyester 100%] and a sheet [an attached white cotton for test (unbleached muslin No. 3), JIS Test Fabric-Cotton] were provided by the client.

3. Test summary

Samples were prepared by dropping bacterial suspension for a test on the location of the sheet that the client specified with or without incubation for 5 or 10 minutes at room temperature. The number of living bacteria in the sample was measured after applying the specimen to the sample under the condition specified by the client.

4. Test results

Results are indicated in Table 1.

Plates for measuring the number of living bacteria after culture are shown in pictures 1 to 42.

Table 1-1 Results of the measurement of the number of living bacteria in samples

Test Bacteria	Sample	Classification	Application duration	The number of living bacteria (/cells)
<i>E. coli</i>	No incubation	Before application		2.1 X 10 ⁵
			about 2 seconds	1.7 x 10 ⁵
		After specimen application*	about 5 seconds	3.3 x 10 ⁵
			about 10 seconds	2.7 X 10 ⁵
	5 minutes incubation	Before application		2.1 X 10 ⁵
			about 2 seconds	1.9 x 10 ⁵
		After specimen application *	about 5 seconds	2.1 x 10 ⁵
			about 10 seconds	1.1 X 10 ⁵
	10 minutes incubation	Before application		2.2 X 10 ⁵
			about 2 seconds	1.9 X 10 ⁵
		After specimen application*	about 5 seconds	1.0 X 10 ⁵
			about 10 seconds	6.5 x 10 ⁵
<i>S. aureus</i>	No incubation	Before application		1.9 X 10 ⁵
			about 2 seconds	1.6 X 10 ⁵
		After specimen application*	about 5 seconds	1.4 X 10 ⁵
			about 10 seconds	1.6 X 10 ⁵
	5 minutes incubation	Before application		1.6 X 10 ⁵
			about 2 seconds	1.5 X 10 ⁵
		After specimen application*	about 5 seconds	1.6 X 10 ⁵
			about 10 seconds	1.2 X 10 ⁵
	10 minutes incubation	Before application		1.5 X 10 ⁵
			about 2 seconds	1.4 X 10 ⁵
		After specimen application*	about 5 seconds	9.2 x 10 ⁴
			about 10 seconds	1.4 X 10 ⁵

Sample: Samples were prepared by covering a bed pad with a sheet and dropping 80 μl (10 μl x 8 drops) of bacterial suspension for a test on the location of the sheet that the client specified with or without incubation for 5 or 10 minutes at room temperature.

Operating condition: only aspiration

*The application was performed so that a suction nozzle on the specimen was located just above the location where the bacterial suspension on the sample was inoculated.

Table 1-2 Results of the measurement of the number of living bacteria in samples

Test Bacteria	Sample	Classification	Application condition	The number of living bacteria (/cells)	
<i>E. coli</i>	No incubation	Before application		2.8 x 10 ⁵	
		After specimen application*	2 round trips	1.6x10 ³	
			5 round trips	<10	
	5 minutes incubation	Before application		3.2 x 10 ⁵	
		After specimen application*	2 round trips	40	
			5 round trips	<10	
	10 minutes incubation	Before application		6.0 X 10 ⁵	
		After specimen application*	2 round trips	70	
			5 round trips	<10	
	<i>S. aureus</i>	No incubation	Before application		1.6 X 10 ⁵
			After specimen application*	2 round trips	<10
				5 round trips	<10
5 minutes incubation		Before application		1.9 X 10 ⁵	
		After specimen application*	2 round trips	20	
			5 round trips	<10	
10 minutes incubation		Before application		1.4X 10 ⁵	
		After specimen application*	2 round trips	40	
			5 round trips	<10	

Sample: Samples were prepared by covering a bed pad with a sheet and dropping 80 µl (10 µl x 8 drops) of bacterial suspension for a test on the location of the sheet that the client specified with or without incubation for 5 or 10 minutes at room temperature.

Operating condition: aspiration + UV lamp

<10: not detected

*Specimen was placed on a sample and a speed specified by the client (about 8 cm/second) was used for the movement.

5. Test method

1) Test bacteria

Escherichia coli NBRC3972 (*E. coli*)

Staphylococcus aureus subsp. *aureus* NBRC12732 (*S. aureus*)

2) Medium for measuring the number of bacteria and culture condition

Standard agar medium [Eiken chemical Co., Ltd.], 35°C ±1°C, for 2 days

3) Preparation of the test bacterial suspension

After test bacteria were cultured on a normal agar medium [Eiken chemical Co., Ltd.] at 35°C ±1°C for 18 to 24 hours, the number of bacteria was adjusted to about 10⁶ cells/ml by floating in purified water.

4) Sample preparation

Samples were prepared by covering a bed pad [outer fabric: polyester 80%, cotton 20%; inner cotton: polyester 100%] with a sheet [an attached white cotton for a test (unbleached muslin No. 3), JIS Test Fabric-Cotton] which was high-pressure steam sterilized (121°C for 15 minutes), and by dropping 80 µl (10 µl x 8 drops) of bacterial suspension for a test on the location of the sheet that the client specified with or without incubation for 5 or 10 minutes at room temperature.

5) Testing operation

After applying the specimen to the sample under the condition specified by the client, a region of about 15 cm x 15 cm of the sample, that included a spot where the bacterial suspension for the test was dropped, was cut out and washed out with 10 mL of SCDLP medium [Nihon Pharmaceutical Co., Ltd.]. The number of living bacteria in this washout fluid was measured by the pour plate culture method using a medium for measuring the number of bacteria and it was converted to a number per sample

Samples where a specimen was not applied were also tested in the same manner, and they were called “before application.”



Picture 1 *E. coli* No incubation

Before application: only aspiration
(Washout fluid 1 mL)



Picture 2 *E. coli* No incubation

After specimen application: only aspiration, for about 2 seconds
(Washout fluid 1 mL)



Picture 3 *E. coli* No incubation

After specimen application: only suction, for about 5 seconds
(Washout fluid 1 mL)



Picture 4 *E. coli* No incubation

After specimen application: only suction, for about 10 seconds
(Washout fluid 1 mL)



Picture 5 *E. coli* 5 minutes incubation
Before application: only suction
(Washout fluid 1 mL)



Picture 6 *E. coli* 5 minutes incubation
After specimen application: only suction, for about 2 seconds
(Washout fluid 1 mL)



Picture 7 *E. coli* 5 minutes incubation

After specimen application: only suction, for about 5 seconds
(Washout fluid 1 mL)



Picture 8 *E. coli* 5 minutes incubation

After specimen application: only suction, for about 10 seconds
(Washout fluid 1 mL)



Picture 9 *E. coli* 10 minutes incubation
Before application: only suction
(Washout fluid 1 mL)



Picture 10 *E. coli* 10 minutes incubation
After specimen application: only suction, for about 2 seconds
(Washout fluid 1 mL)



Picture 11 *E. coli* 10 minutes incubation

After specimen application: only suction, for about 5 seconds

(Washout fluid 1 mL)



Picture 12 *E. coli* 10 minutes incubation

After specimen application: only suction, for about 10 seconds

(Washout fluid 1 mL)



Picture 13 *S. aureus* No incubation
Before application: only suction
(Washout fluid 1 mL)



Picture 14. *S. aureus* No incubation
After specimen application: only suction, for about 2 seconds
(Washout fluid 1 mL)



Picture 15 *S. aureus* No incubation
After specimen application: only suction, for about 5 seconds
(Washout fluid 1 mL)



Picture 16 *S. aureus* No incubation
After specimen application: only suction, for about 10 seconds
(Washout fluid 1 mL)



Picture 17 *S. aureus* 5 minutes incubation
Before application: only suction
(Washout fluid 1 mL)



Picture 18 *S. aureus* 5 minutes incubation
After specimen application: only suction, for about 2 seconds
(Washout fluid 1 mL)



Picture 19 *S. aureus* 5 minutes incubation
After specimen application: only suction, for about 5 seconds
(Washout fluid 1 mL)



Picture 20 *S. aureus* 5 minutes incubation
After specimen application: only suction, for about 10 seconds
(Washout fluid 1 mL)



Picture 21 *S. aureus* 10 minutes incubation
Before application: only suction(Washout
fluid 1 mL)



Picture 22 *S. aureus* 10 minutes incubation
After specimen application: only suction, for about 2 seconds
(Washout fluid 1 mL)



Picture 23 *S. aureus* 10 minutes incubation

After specimen application: only suction, for about 5 seconds
(Washout fluid 1 mL)



Picture 24 *S. aureus* 10 minutes incubation

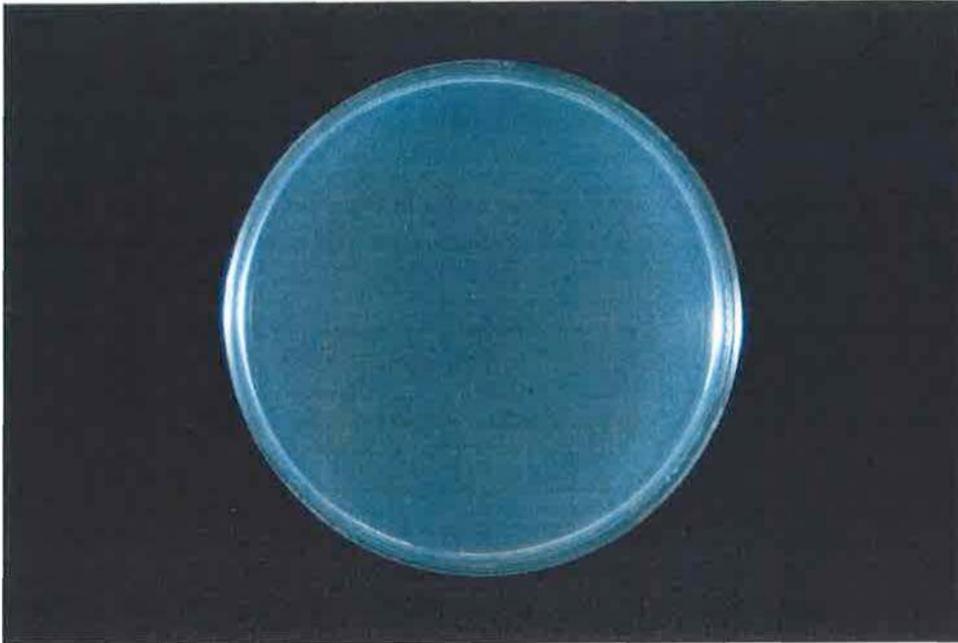
After specimen application: only suction, for about 10 seconds
(Washout fluid 1 mL)



Picture 25 *E. coli* No incubation Before
application: Suction + UV lamp
(Washout fluid 1 mL)



Picture 26 *E. coli* No incubation
After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 27 *E. coli* No incubation

After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)



Picture 28 *E. coli* 5 minutes incubation

Before application: Suction + UV lamp
(Washout fluid 1 mL)



Picture 29 *E. coli* 5 minutes incubation

After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 30 *E. coli* 5 minutes incubation

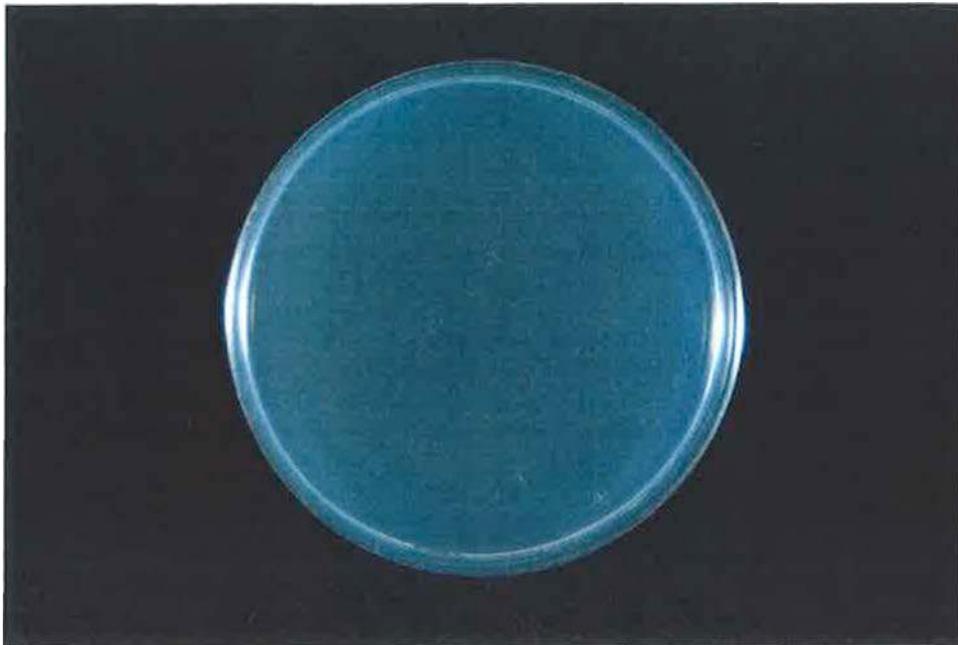
After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)



Picture 31 *E. coli* 10 minutes incubation
Before application: Suction + UV lamp
(Washout fluid 1 mL)



Picture 32 *E. coli* 10 minutes incubation
After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 33 *E. coli* 10 minutes incubation
After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)



Picture 34 *S. aureus* No incubation
Before application: Suction + UV lamp
(Washout fluid 1 mL)



Picture 35 *S. aureus* No incubation

After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 36 *S. aureus* No incubation

After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)



Picture 37 *S. aureus* 5 minutes incubation
Before application: Suction + UV lamp
(Washout fluid 1 mL)



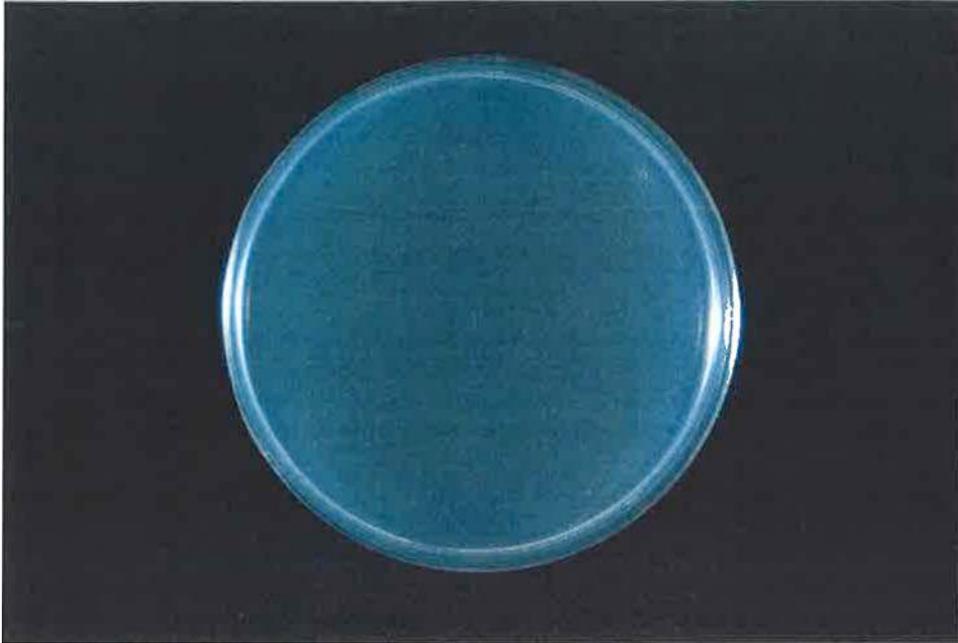
Picture 38 *S. aureus* 5 minutes incubation
After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 39 *S. aureus* 5 minutes incubation
After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)



Picture 40 *S. aureus* 10 minutes incubation
Before application: Suction + UV lamp
(Washout fluid 1 mL)



Picture 41 *S. aureus* 10 minutes incubation

After specimen application: Suction + UV lamp, 2 round trips
(Washout fluid 1 mL)



Picture 42 *S. aureus* 10 minutes incubation

After specimen application: Suction + UV lamp, 5 round trips
(Washout fluid 1 mL)

Concluded.