



JAPAN MICROBIOLOGICAL CLINIC CO., LTD.

5-17-1 OKADA, ATUGI, JAPAN

TEL: 81-46-229-5581 FAX: 81-46-229-3833 E-mail: jmc@biseibutsu.co.jp

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THE REPORT OF TEST RESULTS

Client : NOK Corporation

1. Name of test

Retentionability test of bacteria by test filter. (Based on JIS K 3835)

2. Test materials

Test filter : Hollow fiber module Module a

Quantity : one

Sterilize method: Dipping in 100ppm of Sodium hypochlorite at 30min.

Test place : Laboratory of Japan Microbiological Clinic co.,ltd.

Date of test: 9. Jan.~16. Jan.2015

3. Test procedure

Test condition

Test bacteria : *Brevundimonas diminuta* ATCC19146

[Filtering condition]

(1) Effective filtering area : 0.26m²

(2) Material of Filter Housing : Alminum (offer from NOK)

(3) Filtering pressure : 210KPa

(4) Volume of Challenging liquid : 3L

[Condition of Challenging liquid of bacteria]

(5) Medium : Saline Lactose Broth

(6) Temperature of incubation / time : 30±1°C/24hrs

(7) Concentration of bacteria in test solution : >10⁷ CFU/cm²
of filtering area (3L test solution)

Measurement of bacterial number : Agar dilution method
(dilution stage : 10²~10⁶)

[Measurement of bacteria in filtrated liquid]

(8) Filter of bacteria measurement : 0.22 μ m 47mmΦ

Liquid volume of evaluation : 3L

(First:0~0.5L, Second:0.5~3L)

(9) Condition of Incubation:

Medium / temperature / period

SCD agar medium / $30 \pm 1^\circ\text{C}$ / 7days

(10) Indication of Retentionability : LRV (Log Reduction Value)

Detected bacteria was confirmed it's a testing bacteria

(11) Validation test of bacteria-free before final test line :

Confirmation of bacteria-free of test filter was done

by filtering of bacteria-free water before final test.

• Test condition (Filtering pressure) : same as final test

• Filtering volume: 3L,

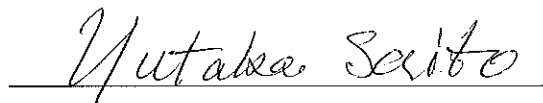
• Measurement of live bacteria: CFU/100mL

4. Results

See attached table-1 and picture

The test results of retentionability of bacteria started from 9.Jan.2015 was indicated as above.

Signature



Yutaka Saito

JAPAN MICROBIOLOGICAL CLINIC CO., LTD.

Results

Table-1

Test filter	Numbers of bacteria through from test filter			LRV
	0~0.5L (CFU)	0.5~3L (CFU)	Full volume (CFU /3L)	
Module a	0	0	0	≥ 10.65

Effective filtering area: 0.26m²

Test bacteria: *Brevundimons diminuta* ATCC19146

Concentration of bacteria in test solution:

$$1.5 \times 10^7 \text{ CFU/mL } (4.5 \times 10^{10} / \text{module} \Rightarrow 1.7 \times 10^7 / \text{cm}^2)$$

$$\text{LRV} = \log_{10} A / B$$

A: total members of bacteria (3L)

B: numbers of bacteria through from test filter (3L)

(B: In case of 0/3L, use 1 in place of 0)

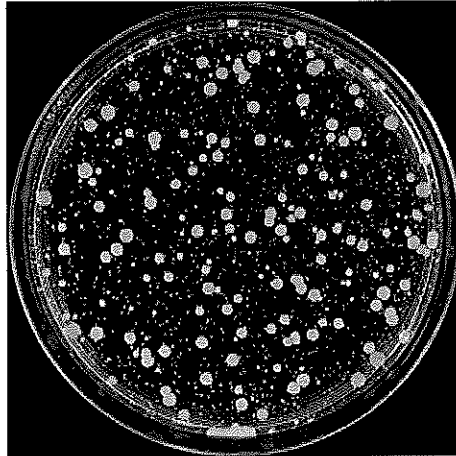
- Confirmation of bacteria-free test before final test
(CFU/100mL)

Module a : 0

Attached picture

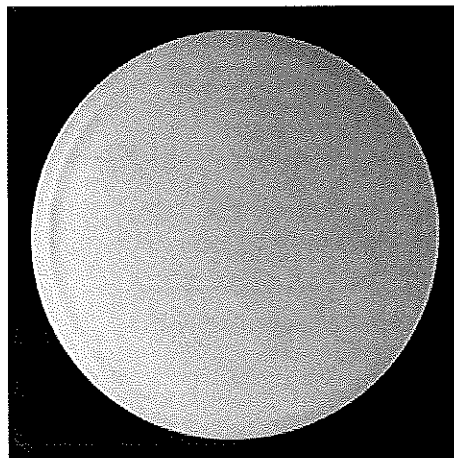
Test bacteria : *Brevundimons diminuta* ATCC19146

• Test bacteria in test solution 1mL(10^4 dilution stage)



Module a

• Numbers of bacteria through from test filter(0.5~3L)



• Confirmation of bacteria-free test before final test

