

Test Report

No. NB1704004-006

April 20, 2017

To: RAYCOP JAPAN INC.

AIKEN Co., Ltd.

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Sample type	Vacuum cleaner for bedding	Reception method	Brought in (April 10, 2017)
Test name	Test for cedar pollen allergen (Cry j1) collection performance		
Sample name	RAYCOP VCEN-100		
Bedding used	Mattress (about 100 cm × 200 cm × 5 cm) Outer fabric: polyester 100%, filler: polyester 100% Bed pad (about 100 cm × 200 cm) Outer cloth: polyester 100%, inner cloth: non woven fabric polypropylene, filler: polyester 100% Sheet (about 100 cm × 50 cm) Material: polyester 100%, placing numbers: 304 (A mattress sheet was cut and used.)		
Allergen under testing	Japanese cedar pollen (Biostir Inc.)		
Suction condition	For 1, 3, 5 and 0 minutes/50 cm × 100 cm		
Testing dates	April 11, 2017 (sample preparation), April 18 and 19, 2017 (allergen analysis)		

Here is a report on test results of the above sample.

Sample analyzed	Suction time	The amount of residual cedar pollen allergen (Cry j1)				Recovery rate
		Unit: μg				
		1	2	3	Mean value	
Sheet (5 cm × 5 cm × 10 sheets)	1 minute	ND	ND	ND	ND	99.5% <
	3 minutes	ND	ND	ND	ND	99.5% <
	5 minutes	ND	ND	ND	ND	99.5% <
	0 minute	2.98	2.50	3.16	2.88	

Analysis method: Sandwich ELISA protocol, ND: less than the minimum determination limit (14 ng)

- Refer to attached papers regarding test method.

Test director: Minoru Sugiura

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Director's seal



Attached paper**Test method**

A mattress was opened up on the floor. ⁽¹⁾

A bed pad was laid on the mattress. ⁽²⁾

A sheet was fixed at the center of the bed pad using double-sided tape. ^{(3) (4)}

0.5 g of cedar pollen was evenly spread on the testing compartment part of the sheet. ⁽⁵⁾

Suction was performed for a fixed time (1, 3, 5, 0 minutes) using the test machine. ⁽⁶⁾

Ten pieces of testing fragments (5 cm × 5 cm) were randomly cut out from the sheet. They were all put into a reclosable plastic bag and used as a sample for analysis after the plastic bag was sealed.

Furthermore, sampling was repeated and 3 samples for analysis were collected. ⁽⁷⁾

(1) Mattress About 100 cm × 200 cm × 5 cm, outer fabric: polyester 100%, filler: polyester 100%, Nitori Holdings Co., Ltd.

(2) Bed pad About 100 cm × 200 cm, surface cloth: polyester 100%, back cloth: polyester 100%, inner cloth: non woven fabric polypropylene, filler: polyester 100%, Nitori Holdings Co., Ltd.

(3) Sheet 100 cm × 50 cm, material: polyester 100%, placing numbers: 304
A mattress sheet (Nitori Holdings Co., Ltd.) was cut and used.

(4) Double-sided
tape Width 20 mm, adhesive: acrylic, base material: special polyolefin foam, Nitoms, Inc.

(5) Cedar pollen was diluted with lycopodium powder (for artificial pollination, Agri Co., Ltd.) on a timely basis and utilized.

(6) Moving speed: about 10 seconds / 50 cm × 100 cm

(7) After samples were collected, they were kept in a freezer until analysis.

Attached paper**Test method**

20 ml of PBS was added to a reclosable plastic bag containing a sample for analysis. ⁽¹⁾

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The bag and its contents were crumpled by hand for 5 minutes. ⁽²⁾

Stand still for 24 hours at 4 °C.

After filtration with a membrane filter (pore diameter 0.45 µm), the obtained filtrate was named undiluted specimen extraction liquid.

(1) PBS: Contains 1% BSA + 0.05% tween 20 + 0.05% sodium azide.

(2) Under room temperature condition.

Anti-cry 1 mouse IgG monoclonal antibody (anti-Cryj1 mAb013, 10 µg/ml), 50 µl/well

4°C, o/n

Blocking by PBS with 0.1% BSA, 200 µl/well

25°C, 1 h

Wash with PBS 200 µl × 3

Sample or standard, 50 µl/well

1 h at 25°C

Wash with PBST 200 µl × 3

Enzyme - labeled antibody (Peroxidase conjugated anti-Cry j1 mAb 053, 1000-time dilution) 50 µl/well

2 h at 25°C

Wash with PBST 200 µl × 3

ABTS, 50 µl/well

30 min at 25°C

Absorbance measurement (405 nm)

Attached paper	Test method
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Attached paper	Test method
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[Calculation method]

$$Cp = \frac{S_0 - S}{S_0} \times 100$$

Cp: Recovery rate (%)

S₀: Amount of residual cedar pollen allergen (ng) - suction time 0 minute

S: Amount of residual cedar pollen allergen (ng) - suction time 1 minute (or 3, 5 minutes)

Concluded.