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Page 1 of 5

Date issued: August 08, 2016

**REPORT**

**Client:** Mitsubishi Electric Corporation  
3-18-1 Oshika, Suruga-ku, Shizuoka-shi, Shizuoka 422-8528, Japan

**Sample(s):** Air Conditioners KIRIGAMINE MSZ-LN Series

**Title:** Airborne Mold Spores Removal Performance Test

**Received date of sample(s):** July 18, 2016

This report has been translated into English from Japanese report No. 16069353001-0101 (Date issued: August 08, 2016).

Signed for and on behalf of JFRL

*T. Arai*

Takeko Arai  
Section of Analysis Documentation

*Aug. 30, 2016*

Date

**VCN16A513**

## Airborne Mold Spores Removal Performance Test

### 1. Client

Mitsubishi Electric Corporation

### 2. Sample

Air Conditioners KIRIGAMINE MSZ-LN Series

### 3. Outline of the method

This test was performed using the method described in "Airborne Virus Removal Performance Test," Appendix-D (Regulations), Japan Electrical Manufacturers' Association Standard JEM 1467 Air Cleaners (revised on March 25, 2015) as a reference. The test organism was *Penicillium citrinum* NBRC 6352, and the incubation conditions were changed from the reference method.

#### 1) Test date

July 19 and 20, 2016

#### 2) Test facility

Osaka Branch, Japan Food Research Laboratories  
3-1 Toyotsu-cho, Suita-shi, Osaka 564-0051, Japan

### 4. Results

Table 1 and Figure 1 show the test results.

As reference data, Figures 2 and 3, and Table 2 show the measurement results of the airborne particles and the measurement results of temperature and humidity during the test, respectively.

Table 3 shows the test conditions.

Table 1. Viable cell counts on gelatin filters

Test organism	Condition	Viable cell count (per filter)			
		Initial	After 60 min.	After 120 min.	After 180 min.
<i>Penicillium citrinum</i>	Natural decline	$1.5 \times 10^6$	$1.2 \times 10^6$	$8.9 \times 10^5$	$6.3 \times 10^5$
	Sample operation	$1.2 \times 10^6$	$6.1 \times 10^4$	$6.8 \times 10^3$	$9.3 \times 10^2$

\* The sample was not operated.

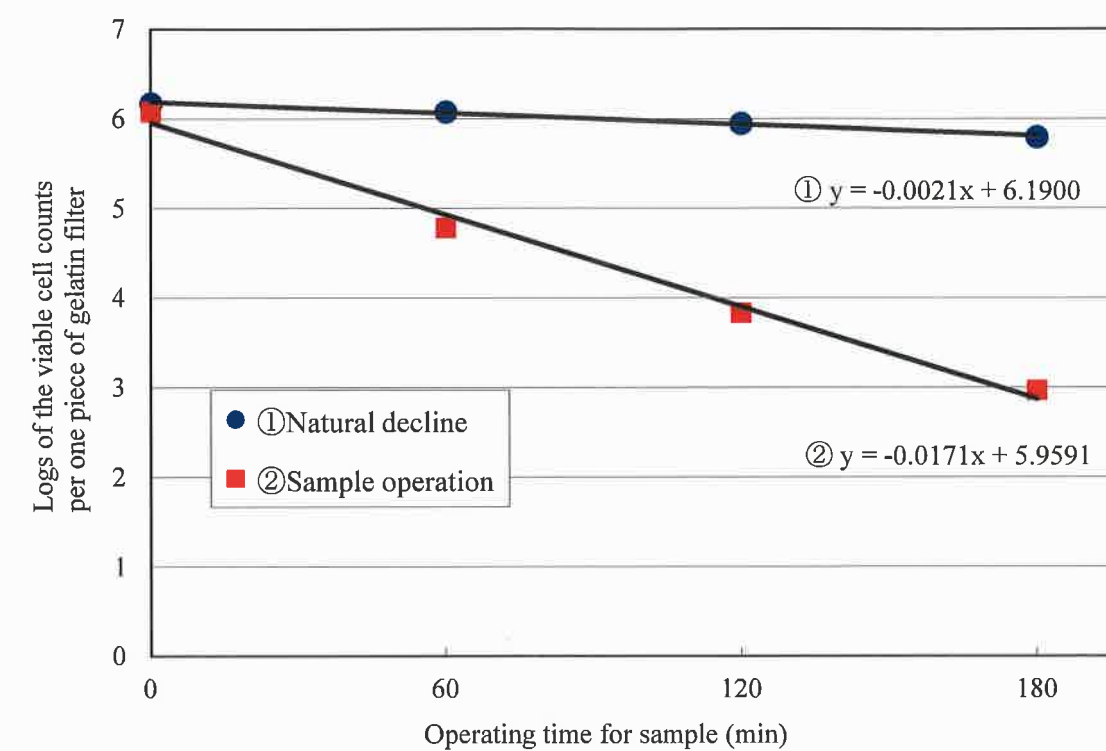
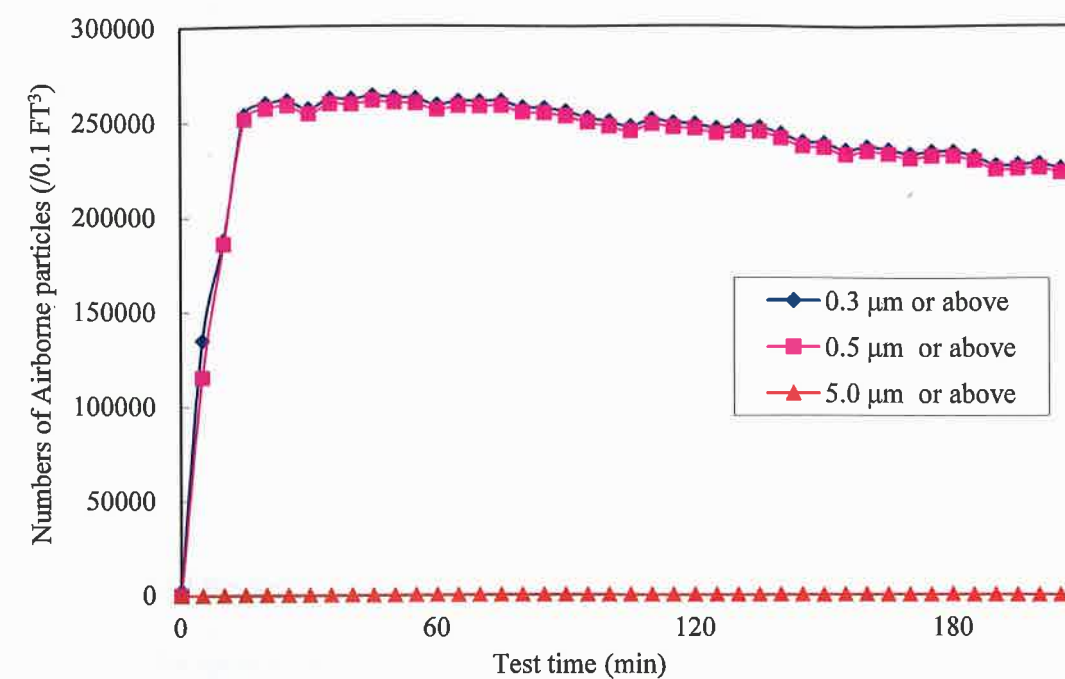
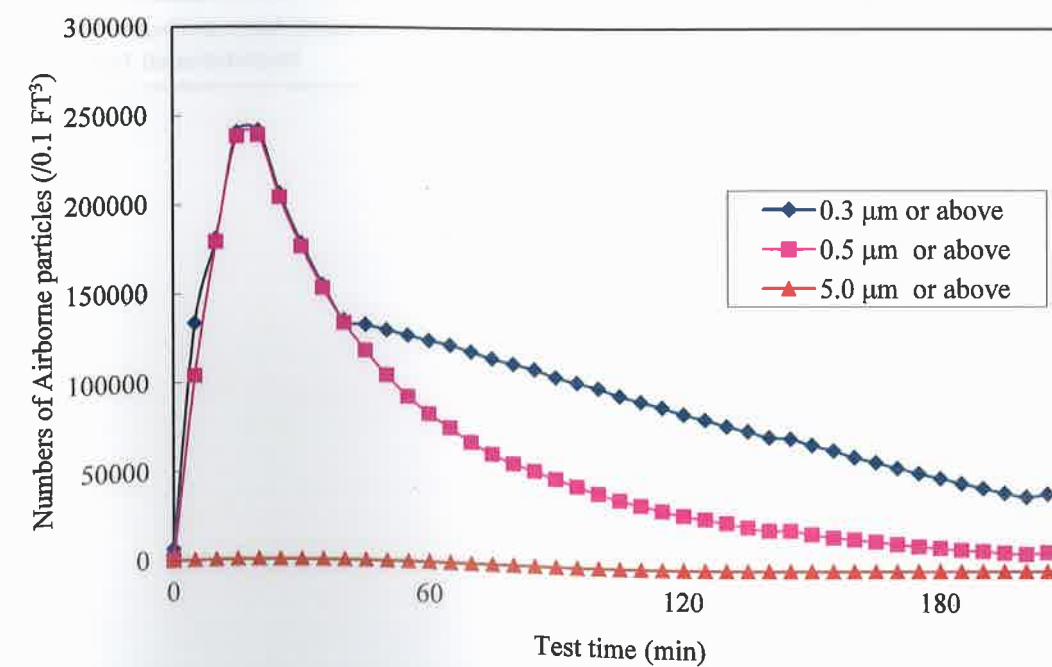


Figure 1. Graph obtained from the approximate expression



Measuring instrument: Handheld Laser Particle Counter (Kanomax Japan Incorporated)  
Figure 2. Airborne particles measurement results: Natural decline



Measuring instrument: Handheld Laser Particle Counter (Kanomax Japan Incorporated)  
Figure 3. Airborne particles measurement results: Sample operation

Table 2. Temperature and humidity at the start and the end of the test

Condition	Temperature (°C)		Humidity (%RH)	
	Start	End	Start	End
Natural decline*	27	28	50	50
Sample operation	28	29	50	40

Measuring instrument: Ondotori TR-72Ui (T &amp; D Corporation)

\* The sample was not operated.

Table 3. Test conditions

Capacity of the test chamber	About 25 m <sup>3</sup> [3266 mm (D) × 3290 mm (W) × 2328 mm (H)]
Test organism	<i>Penicillium citrinum</i> NBRC 6352
Viable cell counts of the spore suspension	Natural decline: 3.5 × 10 <sup>8</sup> /mL Sample operation: 2.4 × 10 <sup>8</sup> /mL
Spray volume of the spore suspension	6 mL (0.4 mL/min × 15 minutes)
Operating time period of the sample	60 minutes, 120 minutes, 180 minutes
Air collection volume by the gelatin filter	80 L (2.4 m <sup>3</sup> /h × 2 minutes)
Solution for washing the gelatin filter	0.005 % dioctyl sodium sulfosuccinate solution, 10 mL
Method for viable cell count measurement	Pour plate method
Medium and incubation conditions for viable cell count measurement	Potato dextrose agar (Eiken Chemical Co., Ltd.) 25 °C ± 1 °C, 7 days

\*\*End of Report\*\*