



# Air Purifier Healthy Air Because of DAIKIN 'Pure' Air

Scan to watch our exclusive Air Purifier video!





23







## Model debut in a compact and stylish design!

	MCK55	UVMM			
Humidification	lection	De	eodorisation		
	Capacity in turbo	operation mode			
Air purificatio	on	Humi	idifying	capacity*2	
Air purification only Humidification + air purification Airflow 5.5 m³/min. Airflow 5.5 m³/min.		500 <sub>mL/h</sub>		) <sub>mL/h</sub>	
Applicable room a ~ 41m <sup>2</sup> (441 sq fi		Ap	plicable r	oom area	
Approximate room cleaning time 13.2m²/11min.				² (248 sq ft) n² (151 sq ft)	
MC55XVMM	1		MC40X	(VMM	
Dust collection Dec	dorisation	Dust collection Deodorise		Deodorisation	
Capacity in turbo operation	on mode	Capaci	ty in turbo	operation mode	
Air purificatio	Air purification Air purification				
Air purification of	nly	Air purification only			
Airflow <b>5.5</b> m <sup>3</sup> /mir	1.	Airflow <b>4.0</b> m³/min.			
Applicable room a ~ 41m² (441 sq ft		Applicable room area ~ 31m <sup>2</sup> (333 sq ft) <sup>*1</sup>			
Approximate room clea 13.2m <sup>2</sup> /11min.	ning time	Approximate room cleaning time 13.2m <sup>2</sup> /15min.			
	MC30Y	VMM			
Dust collection			Deodor	isation	
	Capacity in turbo	operation mode			
	Air puri	fication			
	Air purifica	ation only			
	Airflow <b>3</b> .	O <sub>m³/min</sub> .			
	Applicable room area $\sim 23m^2(248 \text{ sg ft})^{-1}$				
Approximate room cleaning time 13.2m <sup>2</sup> /19 min.					

#### Note:

\*I Calculated by test method based on Japan Electrical Manufacturers' Association Standard JEMI467. Operation during turbo mode has been approximated.

\*<sup>2</sup>Humidifying capacity by JEM1426 (electric humidifier) with turbo operation at temperature of 20°C and humidity of 30%.



Ideal for bedrooms and other small rooms. The sophisticated appearance fits in perfectly with a room's interior design.

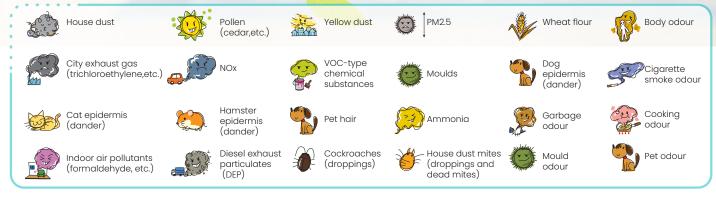
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## Double Method



Pollutants that can be captured and deodorised, by filters:



Pollutants that can be reduced:



## Daikin's Unique Double Method

\* MCK55 and MC55 models only.

### OUTSIDE

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### **Active Plasma Ion Flow Out**

The plasma ion technology uses plasma discharge to release ions into the air, which combine with components of the air to form active species with strong oxidizing power like OH radical. They attach to the surface of fungi and allergens and decompose proteins in the air by oxidation.

Mechanism of reduction by active plasma ions

### Concentration: 25,000 ions/cm<sup>3</sup>





#### Note:

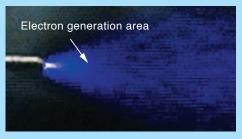
The number of ions per 1cm<sup>3</sup> of air blown into the atmosphere measured near the air outlet during operation with maximum airflow. Test conditions: temperature 25°C, humidity 50%.

Daikin's plasma ions have been proven to be safe in regards to effects on skin, eyes and respiratory organs. Testing organization: Life Science Laboratories, Ltd. Name of test: repeated-dose toxicity test Test number: 12-II A2-0401

#### INSIDE

### **Decomposition By Streamer**

Streamer, a type of plasma discharge, decomposes hazardous chemical substances. The decomposition power is comparable to thermal energy of about 100,000°C.\*2



Note:

\*2 Comparison of oxidation decomposition. This does not mean temperature will become high.





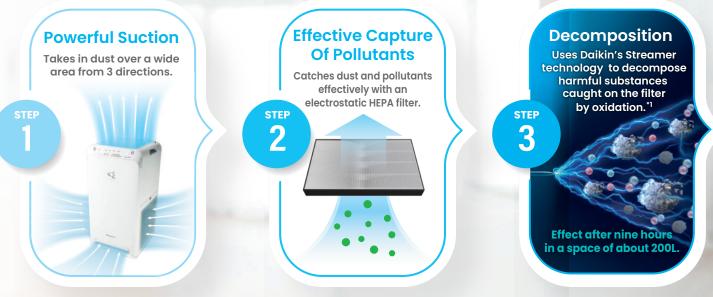
Streamer emits high-speed electrons.

The electrons collide and combine with nitrogen and oxygen in the air to form four kinds of decomposing elements with decomposition power.

The decomposing elements break down and decompose harmful substances caught by the filter.

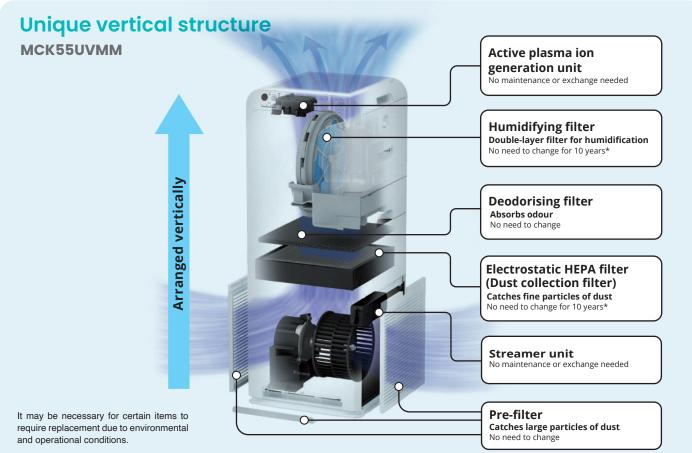


## Three Steps To Decompose Harmful Substances



#### Note:

- \*1 (Reduction of gases) Testing organization: Life Science Research Laboratory. Test method: After operating a gasoline engine for 10 minutes (when particulate concentration reached 60mg/m<sup>3</sup>), operated the air purifier for 80 minutes to absorb polluting dust emitted from the engine. Operated this air purifier for 24 hours in a closed space of 200L and measured the effect to decompose gases.
- Test result: Compared with a test without Streamer irradiation, gas components were reduced by 63% in 9 hours. Test number: LSRL-83023-702.
- Test unit: Tested with MCK70N (Japanese model).

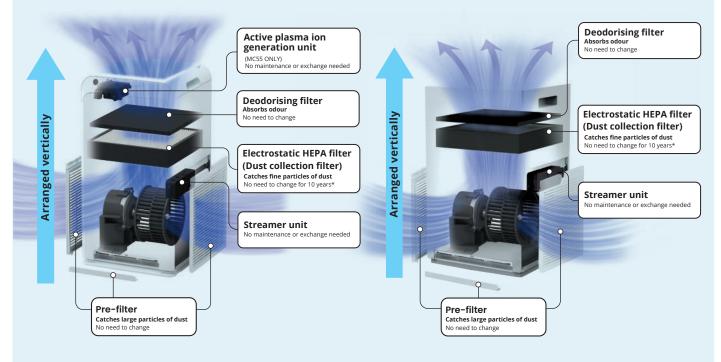


\* Verified by test method based on Japan Electrical Manufacturers' Association Standard JEM1467.



### **Unique vertical structure**

### **МС55/40XVMM**



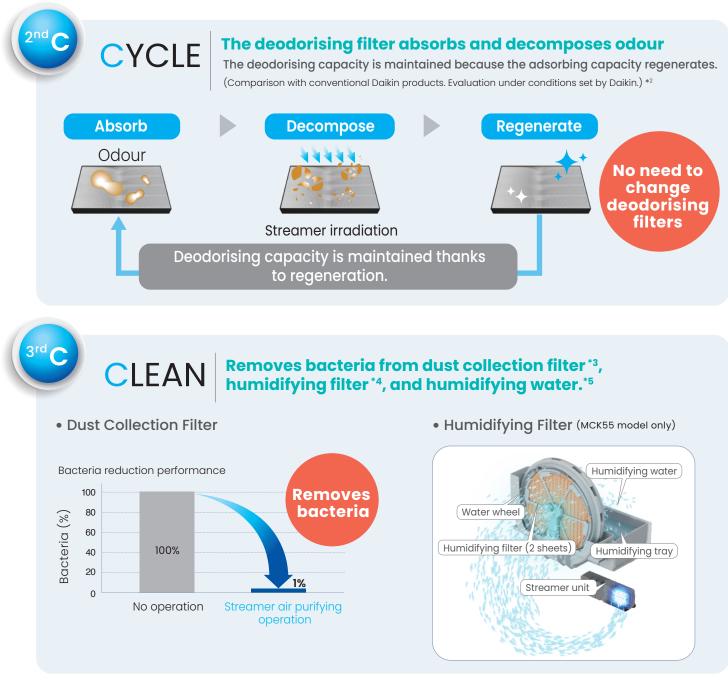
MC30YVMM

It may be necessary for certain items to require replacement due to environmental and operational conditions.

\* Verified by test method based on Japan Electrical Manufacturers' Association Standard JEM1467.

## The 3C's of Streamer





#### Note:

- \*1 (Reduction of gases) Testing organization: Life Science Research Laboratory. Test method: After operating a gasoline engine for 10 minutes (when particulate concentration reached 60mg/m<sup>3</sup>), operated the air purifier for 80 minutes to absorb polluting dust emitted from the engine. Operated this air purifier for 24 hours in a closed space of 200L and measured the effect to decompose gases. Test result: Compared with a test without Streamer irradiation, gas components were reduced by 63% in 9 hours. Test number: LSRL-83023-702. Test unit: Tested with MCK70N (Japanese model).
- \*2 Placed the air purifier and an odour component, acetaldehyde, in a box of 21 m<sup>3</sup> and operated the air purifier. Examined increase of concentration of product (CO2) generated by decomposition of acetaldehyde by Streamer (evaluation by Daikin). Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series.
- \*3 Testing organization: Japan Food Research Laboratories. Test number: 15044988001–0201. Test method: Attached a test piece inoculated with bacteria liquid on the upstream side of a dust collection filter installed in an air purifier, and operated it in a test area of 25 m<sup>3</sup>. Counted the number of live bacteria after five hours. Test object: A type of bacterium. Object part: Dust collection filter. Test result: Reduced by more than 99% in five hours. Test unit: Tested with MCK555 (Japanese model), a model equivalent to MCK55T series (turbo operation).

\*4 (Removal of bacteria from humidifying filter) Works on objects caught by the humidifying filter. Testing organization: Japan Food Research Laboratories. Test number: 15044989001-0101 Test method: Attached a test piece inoculated with bacteria liquid on the upstream side of a humidifying filter installed in an air purifier, and operated it in a test area of 25 m<sup>3</sup>. Counted the number of live bacteria after five hours. Object part: Humidifying filter. Test result: Reduced by more than 99% in five hours. Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series (turbo operation).

\*<sup>5</sup> (Reduction of bacteria in humidifying tray) Testing organization: Japan Food Research Laboratories. Test number: 15044985004-0101. Test method: Performance evaluation test by voluntary standard of Japan Electrical Manufacturers' Association (HD-133). Test object: Moulds and bacteria in humidifying water. Test result: Reduced by more than 99% in 24 hours. Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series (turbo operation).

This product can be used to improve the quality of the air by removing airborne hazardous chemical substances, allergens, mould, bacteria, and viruses, etc. However, this product is not intended for the creation of sterile environments or for the prevention pathogen infections.

This description relates to the Streamer Technology devised by Daikin, but not to this Air Purifier. Test results from use of the Streamer Technology are generated according to prescribed test methods conducted by Daikin. Although the Streamer Technology is contained within this Air Purifier, this does not mean that precisely the same results will be experienced using this Air Purifier. Actual results may differ depending on the conditions of product installation and use of the actual product, etc.

## Featuring Electrostatic HEPA filter

Removes 99.97% of fine particles of 0.3µm<sup>\*1</sup>

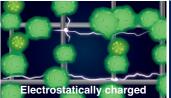


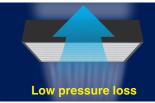
### Comparison Between Electrostatic HEPA Filter And Non-Electrostatic HEPA Filter

The filter collects dust efficiently with electrostatic forces. It is not prone to clogging compared with unelectrified HEPA filters which collect particles only by the fineness of the mesh.

Therefore, a larger amount of air can pass through the filter. The filter can purify a larger amount of air!

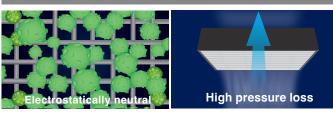
#### **Electrostatic HEPA Filter**





Filter fiber itself is charged with static electricity, and collects particles efficiently. Doesn't clog easily because of low pressure loss.

#### Non-Electrostatic HEPA Filter



Because it catches particles relying only on mesh size, it is necessary to make mesh finer, making it easy to be clogged.

About the dust collection and deodorising capacity of air purifiers:

- Not all harmful substances in cigarette smoke (carbon monoxide, etc.) can be removed.
- Not all odour components that emanate continuously (building material odours and pet odours, etc.) can be removed.

This product is not a medical device, medical treatment device or a therapeutic good. This product is not intended to have any therapeutic use or to be used for the diagnosis, treatment, relief or prevention of illness. If you have a health concern or are not feeling well, please consult a health care professional.

## **Powerful Humidification to Protect** against Air Dryness and Viruses

#### \* MCK55 model only.

#### **Benefit of Humidification**

Protects the skin, the throat and the nostril from dryness.

Protects against viruses by maintaining appropriate humidity of the room.



#### Select the target humidity from 3 levels

(The target humidity is a rough estimation.)



Low Standard High 40% 50% 60%

#### Indicates humidity of the room

HUM monitor (%) 40 50 60

### Eliminates bacteria on the humidifying filter <sup>\*1</sup>

Effect after five hours in a test space of about 25 m<sup>3</sup>. This is an effect in a test space and not a test result in an actual operation space.

#### Reduces bacteria in humidifying water by Streamer \*2

The humidifying tray needs regular maintenance (once in about a week). This is not a verification result in an actual operation environment.

The humidifying tray is irradiated with Streamer as well as the humidifying filter to reduce bacteria in the water.

By keeping the water and its surroundings clean, the air purifier provides clean air and humidity to the room.

Use tap water to fill the tank, and replace with fresh water every day. Using well water or water from water purifiers makes bacteria develop faster.

#### Features for clean humidification

The humidifying tray is equipped with a silver ion agent

A water wheel system to keep the humidifying filter from being directly soaked in water

Note

\*1 (Removal of bacteria from humidifying filter) Works on objects caught by the humidifying filter. Testing organization: Japan Food Research Laboratories. Test number: 15044989001-0101.

Test method: Attached a test piece inoculated with bacteria liquid on the upstream side of a humidifying filter installed in an air purifier, and operated it in a test space of 25 m<sup>3</sup>. Counted the number of live bacteria after five hours.

Object part: Humidifying filter.

Test result: Reduced by more than 99% in five hours.

Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series (turbo operation).

Humidifying water Water wheel **Humidifying filter** (2 sheets) **Humidifying tray** Streamer unit

STREAMER

\*2 (Reduction of bacteria in humidifying tray) Testing organization: Japan Food Research Laboratories. Test number: 15044985004-0101.

Test method: Performance evaluation test by voluntary standard of Japan Electrical Manufacturers' Association (HD-133).

Test object: Moulds and bacteria in humidifying water.

Test result: Reduced by more than 9% in 24 hours. Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series (turbo operation)

## New Stylish and Compact Design

## Flexible choice of where to place the unit





## Powerful Suction and Reduced Operation Sound

### Compact, effective and quiet thanks to the new, innovative structure



### Powerful suction in 3 directions

Effectively takes in dust over a wide area



#### Daikin Design

Takes in large amounts of air because the air inlet is located apart from the air outlet and the airflow from the outlet is soft.

### Operation sound sensed by people is reduced

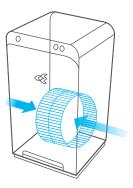
## The key is the sound of airflow from the air outlet

Daikin succeeded in reducing the operation sound sensed by people by adopting a wide air outlet and positioning the fan below the filters for soundproofing effect.



#### The fan is positioned below

Positioned farthest from people's ears. The filters also provide a soundproofing effect, so the operation sound is not disturbing.



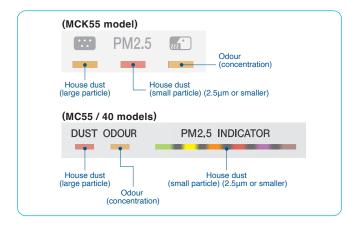
Takes in large amounts of air

## Convenience

## "Triple detection" sensor to quickly detect PM2.5

#### \*For MCK55, MC55 & MC40 only.

Equipped with a high sensitivity dust sensor that distinguishes small particles such as PM2.5 and larger particles of dust and reacts accordingly. Along with the odour sensor, "triple detection" of dust, PM2.5 and odour is provided.



#### Choose from the various operation modes

\*For MCK55, MC55 & MC40 only.

- Anti-Pollen mode
- Econo mode for energy saving

Auto Fan mode

Moist mode (MCK55 model only)
 Humidity is automatically adjusted to be gentle
 on the skin and throat.

### An Air Purifier To Remove Pm2.5

Removes 99% of particles between 0.1µm and 2.5µm<sup>+1</sup>

## Entry of new particles from outdoors, for example by ventilation, is not considered.

"PM2.5" refers to general fine particulate matters sized 2.5  $\mu$ m or smaller. This air purifier has not been proved to remove very fine particles of less than 0.1 $\mu$ m.

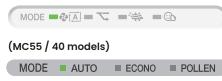
This product does not remove all harmful substances in the air. The test results are effects in a closed space of  $32m^3$  and not in an actual operation space.

Test unit: Tested with MCK55S (Japanese model), a model equivalent to MCK55T series.

#### Note:

<sup>\*1</sup> Test method: Japan Electrical Manufacturers' Association Standard JEM1467. Criterion: Remove 99% of fine particulate matters of 0.1 to 2.5μm in a closed space of 32m3 within 90 minutes. (Converted to a value in a test space of 32m3)

#### (MCK55 model)



#### Other useful features

• Filter cleaning without needing to open the panel

Just vacuum with a vacuum cleaner. No need to open the panel to clean the filter.



#### • Easy-to-detach water tank (MCK55 model only)

The water tank is conveniently placed in a high position for easy detaching. The compact size of the tank makes it easy to replenish water in a sink or a wash basin.



• Equipped with a remote controller (MCK55 & MC55 models only)

Convenient for operation from a distant position.



MCK55 model MC55 model

• Equipped with roll-away casters (MCK55 model only)

Easy to move to clean the floor.



### Haze (PM2.5) Mode Operation (MC30 model only)

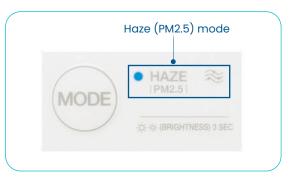
#### Rapidly removes fine particles (PM2.5) and decomposes harmful substances in Haze.

#### Stage 1:

Airflow will begin to operate at Turbo fan speed for 90 minutes with Streamer discharge.

#### Stage 2:

The airflow then changes to Standard fan speed with continuous Streamer discharge until the termination of the function.



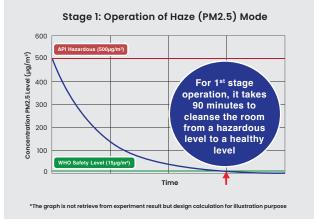
#### The Haze (PM2.5) test results and test methods are being acknowledged and certified by the University of Malaya

#### **Stage 1: Purification Test**

#### Proven to fully cleanse room!

#### Test Result \*1:

Based on the actual operation of Haze mode at a Turbo fan speed for the first 90 minutes operation, resulting the air purifier managed to fully cleanse within 90 minutes. Hence, 90 minutes for first stage operation is proved to be sufficient.

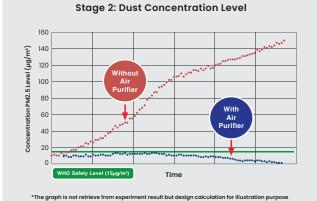


#### **Stage 2: Infiltration Test**

## Effective to maintain a good air quality we breathe in

#### Test Result \*2:

Based on the actual operation of Haze mode at a Standard fan speed operate continuously is proven to maintain the room in a healthy indoor air quality condition effectively.



#### Note:

Test Organisation : Test Chamber at Certification Laboratory, Daikin Research & Development Malaysia (DRDM) in a collaboration with the University of Malaya Test Number : SYS-2021-01

\*1 Test Method : Aims to achieve a reduction of dust concentration level in PM 2.5 size from hazardous to healthy level based on the most critical level stated in API orWorld Health Organization (WHO) standard. 90 minute of operation with Turbo fan speed operated in a test space of 25.7m<sup>3</sup> in accordance to JEM 1467 Standard, is selected to prove the cleansing ability. Purification test is used to justify the cleansing ability of first stage operation.

\*2 Test Method : Aims to ensure the ability of the air purifier to maintain the dust concentration level of the room or further cleanse the room from first stage operation withan assumption made on the amount of haze polluted gases flowing into the room gradually. A continuous operation of Standard fan speed operated in a test space of 25.7m<sup>3</sup> in accordance to JEM 1467 Standard, is selected to prove the cleansing ability. Infiltration test is used to justify the cleansing ability of second stage operation.

## Best Solutions for Indoor Air Quality

PROBLEMS



### SOLUTIONS (FEATURE)

Electrostatic HEPA Filter + PM2.5 sensor















## **Recommended** Areas

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#### Master Bedroom with MCK55UVMM

#### Coverage area up to 41m<sup>2</sup> (441 sq ft)

Suitable for low humidity space due to air conditioning in a living room, master bedroom, office and shop.

#### Living Room with MC55XVMM

Coverage area up to 41m<sup>2</sup> (441 sq ft) Suitable for living room, master bedroom, dining area and office.

Bedroom & Kids' Playroom with MC40XVMM Coverage area up to 31m<sup>2</sup> (333 sq ft) Suitable for a smaller bedroom, dining area, study room and pets area.

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#### Bedroom & Study Room with MC30YVMM

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Coverage area up to 23m<sup>2</sup> (248 sq ft) Suitable for kids bedroom and study room.



Colour						Wł	nite			
Mode			Air purifying operation			Humidifying operation				
Appliaghla	Air purification			41 (	441)					
Applicable room area*1 Air purification + Humidification m <sup>2</sup> (sq ft)		m² (sq ft)	41 (441)			Prefab : 23 (248) Wooden : 14 (151)				
Power supply					1 Ph	ase, 220–240/2	220–230V, 50/6	60Hz		
Mode			Quiet	Low	Standard	Turbo	Quiet	Low	Standard	Turbo
Airflow rate		m³/m	0.9	2.0	3.2	5.5	1.7	2.4	3.2	5.5
Power consun	nption	W	7	10	17	56	11	14	19	58
Sound pressu	re level	dB	19	29	39	53	25	33	39	53
Humidification	۱*2	mL/h					200	240	300	500
Dimensions		mm				H700 X W2	270 X D270			
Weight		kg				9.5 (Witho	out water)			
Dust collection	n method					Electrostati	c HEPA filter			
Humidifying m	nethod					Evaporation	type Element			
Tank capacity						Abou	ıt 2.7L			
Optional accessories		Replacement dust collection filter : KAFP080B4E (Purchase of new filters is needed after about 10 years)*3								
optional acce					Replace	ment humidify	/ing filter : KNM	E080A4E		
						Caster : k	KS080B41			

#### Note:

Calculation based on testing method of the Japan Electrical Manufacturers' Association standard. (JEM1467) <sup>\*2</sup> Humidification amount changes in accordance with indoor and outdoor temperature and humidity.

Measurement condition: 20°C in temperature, 30% in humidity. (JEM1426) <sup>3</sup> Verified by test method based on Japan Electrical Manufacturers' Association Standard JEMI467. The standard assumes five or more cigarettes are smoked per day.

Not all harmful substances in cigarette smoke (carbon monoxide, etc.) can be removed. More frequent filter changing may be needed depending on operating conditions.

About the dust collection and deodorising capacity of air purifiers:

Streamer

Not all harmful substances in cigarette smoke (carbon monoxide, etc.) can be removed.
Not all odour components that emanate continuously (building material odours and pet odours, etc.) can be removed.

This product is not a medical device, medical treatment device or a therapeutic good. This product is not intended to have any therapeutic use or to be used for the diagnosis, treatment, relief or prevention of illness. If you have a health concern or are not feeling well, please consult a health care professional.

#### **Main Function:**











Electrostatic HEPA filter



Remote Controller

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Colour			White				
Mode			Air purifying operation				
Applicable room area*1	Air purificatior	n m² (sq ft)		41 (441) (13.2m² purified in approx. 11 min.)			
Power supply				1 Phase, 220–240/2	20–230V, 50/60Hz		
Plug shape C type							
Mode			Quiet Low Standard Turbo			Turbo	
Airflow rate		m³/min.	1.1 2.0 3.2 5.5			5.5	
Power consur	nption	W	8	10	15	37	
Sound pressu	ire level	dB	19	29	39	53	
Dimensions		mm		H500 X W2	70 X D270		
Weight		kg	6.8				
Dust collectio	n filter		Electrostatic HEPA filter				
Optional accessories	Replacement filter	Dust collection	KAFP080B4E (1 sheet) (Purchase of new filters is needed after about 10 years)*2				

#### Note:

Calculation based on testing method of the Japan Electrical Manufacturers' Association standard. (JEM1467)

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PM2.5

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#### **Main Function:**

Double Method

Streamer







Electrostatic HEPA filter Compact design





Colour White			ite				
Mode			Air purifying operation				
Applicable room area *1	Air purificatior	m² (sq ft)		31 (333) (13.2m² purified in approx. 15 min.)			
Power supply 1 Phase, 220-240/220-230V, 50/60Hz							
Plug shape			C type				
Mode			Quiet Low Standard Turbo			Turbo	
Airflow rate		m³/min.	1.1	1.8	2.8	4.0	
Power consur	nption	W	7	9	13	23	
Sound pressu	ire level	dB	19	27	36	49	
Dimensions		mm		H500 X W2	70 X D270		
Weight		kg	6.8				
Dust collection filter			Electrostatic HEPA filter				
Optional accessories	Replacement filter	Dust collection	KAFP080B4E (1 sheet) (Purchase of new filters is needed after about 10 years)*2				

#### Note:

Calculation based on testing method of the Japan Electrical Manufacturers' Association standard. (JEM1467)

<sup>12</sup> Verified by test method based on Japan Electrical Manufacturers' Association Standard JEM1467.

The standard assumes five or more cigarettes are smoked per day.

Not all harmful substances in cigarette smoke (carbon monoxide, etc.) can be removed. More frequent filter changing may be needed depending on operating conditions.

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#### **Main Function:**











Streamer

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Colour		White					
Mode				Air purifying operation			
Applicable room area *1	Air purificatior	n m² (sq ft)	23 (248) (13.2m² purified in approx. 19 min.)				
Power supply				1 Phase, 220-240/220-230V, 50Hz			
Plug shape			C type				
Mode			Quiet	Standard	Turbo		
Airflow rate		m³/min.	1.0	2.0	3.0		
Power consur	nption	W	8	15	25		
Sound pressu	re level	dB	19	27	37		
Dimensions		mm		H450 X W270 X D270			
Weight		kg	5.8				
Dust collection	n filter	Electrostatic HEPA filter					
Optional accessories	Replacement filter	Dust collection	Replacement dust collection filter : BAFP500A (Purchase of new filters is needed after about 10 years)*2				

#### Note:

Calculation based on testing method of the Japan Electrical Manufacturers' Association standard. (JEM1467)

<sup>\*2</sup> Verified by test method based on Japan Electrical Manufacturers' Association Standard JEM1467. The standard assumes five or more cigarettes are smoked per day.

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About the dust collection and deodorising capacity of air purifiers: • Not all harmful substances in cigarette smoke (carbon monoxide, etc.) can be removed. • Not all odour components that emanate continuously (building material odours and pet odours, etc.) can be removed.

This product is not a medical device, medical treatment device or a therapeutic good. This product is not intended to have any therapeutic use or to be used for the diagnosis, treatment, relief or prevention of illness. If you have a health concern or are not feeling well, please consult a health care professional.

#### **Main Function:**







Deodorising filter





Streamer

19

## Functions

	<u>.</u>			NEW
	MCK55UVMM	MC55XVMM	MC40XVMM	мсзоуумм
Humidification	•	-	-	_
Humidity Sensors		-	-	-
Dust (PM2.5/dust) and Odour Sensor Lamps			•	-
Streamer Discharge	•			
Active Plasma Ion			-	_
Electrostatic HEPA Filter	•			
Deodorising Filter	•			
Moist Mode	•	-	-	-
Econo Mode				_
Auto Fan Mode	•			_
Anti-Pollen Mode				-
Turbo Mode	•			
Haze (PM2.5) Mode	_	_	_	
Child Proof Lock			-	
Brightness Adjustment				
Auto-Restart After Power Failure				
Stabilizer Free	•			
				~

## Functions

#### • Humidity Sensors

Humidity is detected and shown by an easy-to-understand indicator.

#### Dust (PM2.5) And Odour Sensor Lamp

"Triple detection" is performed by a dust sensor (which distinguishes small particles, such as PM2.5 and larger particles of dust, and reacts accordingly) and an odour sensor.

#### • Streamer Discharge

This function quickly decomposes odours and allergens, etc., with high speed electrons that have a powerful ability to oxidize.

#### Active Plasma Ion

The active plasma ion technology decomposes odours and allergens in the air by plasma ions with strong oxidizing power.

#### • Electrostatic HEPA Filter

There is a high-performance filter that catches 99.97% of  $0.3\mu m$  fine particles and requires no changing for 10 years.

#### Deodorising Filter

Odours and adjuvants are caught on the catalyst and decomposed by the power of Streamer.

#### Moist Mode

Automatic control maintains relatively high humidity that is gentle to the throat and the skin.

#### • Econo Mode

Operation automatically switches only between "Quiet" and "Low" fan speeds in accordance with the degree of polluted air.

#### Auto Fan Mode

The air purifier is run, without wasteful operation, only in accordance with the level of pollutants in the air, which is detected by the sensor.

#### • Haze (PM2.5) Mode

The air purifier runs with high dust absorption capacity at Turbo fan speed for 90 minutes and then changes to Standard fan speed with continuous Streamer discharge in order to quickly clean the indoor air.

#### • Anti-Pollen Mode

Switching between "Standard" and "Low" fan speeds to create a gentle turbulence, pollen is caught before it lands on the floor.

#### • Turbo Mode

This convenient mode provides high-power operation to quickly clean the air in a room when, for example, you come home or when you have guests over.

#### Child Proof Lock

This can be used to prevent small children from mishandling the air purifier.

#### Brightness Adjustment

The brightness of the indicator panel lamp can be adjusted.

#### • Auto-Restart After Power Failure

The air purifier memorises the settings for mode, airflow, etc., and automatically returns to them when power is restored after a power failure.

#### Stabilizer Free

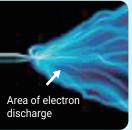
Stabilizer free operation protects the vital components of machine from power fluctuations. With this function installing stabilizer becomes needless (voltage range protection:  $180\sim264V$ ). If power fluctuation is beyond the limit mentioned then a stabilizer is required.

**Test Results of Streamer Devices** 

## Daikin's Streamer Technology

"Streamer Discharge" is a type of plasma discharge which generates high speed electrons that combine with oxygen and nitrogen in the air and turn into active species with strong oxidative decomposition power and thereby eliminate allergens such as mould, mites (droppings and dead mites), and pollen, and hazardous chemical substances such as formaldehyde. Compared to standard plasma discharge (glow discharge), its speed of oxidative decomposition is over 1000 times greater with the same electrical power.

**1,000 Times Faster** than ordinary plasma electric discharge



The decomposition power is comparable to thermal energy of about 100,000°C.\*1

Note: \*1 Comparison of oxidation decomposition. This does not mean temperature will become high.

#### These are effects in a Streamer test space and not verification results in an actual operation space.

#### Experiment results of the Streamer technology that have been verified so far.

🌖 Viruses

Test target	Testing organaization	Test method	Report date
Noro virus	Kobe University Graduate School	ELISA method	12-Jan-2007
Influenza virus (Type A-H1N1)	Vietnam National Institute of Hygiene and Epidemiology	CPE observation	14-Sep-2009
Avian influenza virus (Type A-H5N1)	Vietnam National Institute of Hygiene and Epidemiology	CPE and TCID50	16-Apr-2009
Influenza virus (Type A-H1N1)	Kitasato Research Center for EnvironmentalScience	CPE and TCID50	31-Jul-2009
Influenza virus (Type A-H3N2)	Shanghai City Center for Disease Control and Prevention, etc.	CPE and TCID50	8-Feb-2010
RS virus	Wakayama Medical University	CPE and TCID50	13-Apr-2012
Adeno virus		CPE and TCID50	
Coxsackievirus		CPE and TCID50	
Entero virus	Kitasato Research Center for Environmental Science	CPE and TCID50	23-Jun-2017
Echo virus		CPE and TCID50	
Measles		CPE and TCID50	
Mouse Noro virus	The University of Tokyo Graduate School	CPE and TCID50	11-Oct-2018
Mouse Corona	The University of Tokyo Graduate School	Plaque assay	28-Apr-2020
Novel Coronavirus (SARS-CoV-2)	Okayama University of Science	CPE and TCID50	8-Jul-2020

Scan here for more



DAIKIN Streamer Research Institute

#### Bacteria

Test target	Testing organaization	Test method	Report date
Escherichia coli		Pour plate culture method	8-Apr-2004
Staphylococcus aureus	Japan Food Research Laboratories	Pour plate culture method	8-Apr-2004
Enterotoxin		ELISA method	25-Aug-2004
Tubercle bacilli	Kitasato Research Center for Environmental Science	Plaque assay	8-Mar-2010
Tubercle bacilli	The Jikei University School of Medicine	PCR method	15-Feb-2010
Vancomycin-resistant enterococci (VRE)		Pour plate culture method	19-Feb-2010
Methicillin-resistant Staphylococcus aureus (MRSA)		Pour plate culture method	19-Feb-2010
Pseudomonas aeruginosa	Japan Food Research Laboratories	Pour plate culture method	12-Apr-2010
Bacillus, Serratia, and Arthrobacter		Pour plate culture method	29-Sep-2010
Escherichia coli		Pour plate culture method	10-Sep-2018
Moraxella bacteria		Pour plate culture method	10-Jun-2019

#### 🌒 Molds

Test target Testing organaization		Test method	Report date
Mold (Black mold)	Japan Food Research Laboratories	Pour plate culture method	28-Sep-2004

### Allergens

Test target	Testing organaization	Test method	Report date
Molds and mites (feces and carcasses)	Wakayama Medical University	Observation by electron microscope, ELISA method	14-Sep-2004
Pollen + exhaust gas + PM2.5	Yamagata University under the supervision of Professor Shirasawa,	IgE antibody test, ELISA method	8-Nov-2017
Mites (feces and carcasses) + cedar pollen	Tohoku Bunka Gakuen University	ELISA method	8-Nov-2017
Pollens (16 kinds)	L.S.L. Asaka Research Laboratory under the supervision of Project Professor Kusakabe, graduate school of the University of Tokyo	ELISA method	23-Jan-2020

#### 💬 Hazardous gases

Test target	Testing organaization	Test method	Report date
Adjuvant suppression effect (DEP)	Wakayama Medical University National Institute for Environmental Studies	ELISA method	1-Nov-2005
Adjuvant (VOC)	Tohoku Bunka Gakuen University	Attenuation method	8-Dec-2006

This product can be used to improve the quality of the air by removing airborne hazardous chemical substances, allergens, mould, bacteria, and viruses, etc. However, this product is not intended for the creation of sterile environments or for the prevention pathogen infections.

This description relates to the Streamer Technology devised by Daikin, but not to this Air Purifier.

Test results from use of the Streamer Technology are generated according to prescribed test methods conducted by Daikin. Although the Streamer Technology is contained within this Air Purifier, this does not mean that precisely the same results will be experienced using this Air Purifier. Actual results may differ depending on the conditions of product installation and use of the actual product, etc.

#### **Test Results of Streamer Devices**

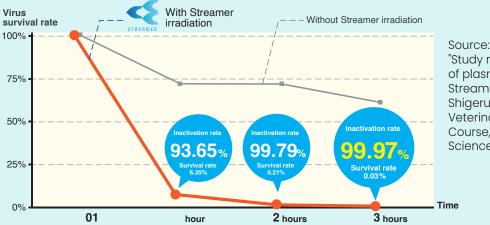
## Experimental Results of Daikin Streamer Technology

Demonstration shows 99.9% inactivation of the Novel Coronavirus (SARS-CoV-2) by Streamer technology after 3 hours

#### **Experimental result**

Daikin in collaboration with a group of research professors from the Department of Microbiology in the Faculty of Veterinary Medicine from the Okayama University of Science, led by Professor Shigeru Morikawa, has demonstrated that the Streamer technology has inactivating effects against the novel Coronavirus (SARS-CoV-2).

In the test, Streamer irradiation inactivated SAR-CoV-2 by 93.7% after 1 hour, 99.8% after 2 hours, and more than 99.9% after 3 hours.



"Study report on the inactivation effect of plasma ion generator (Daikin Streamer) onSARS-CoV-2" written by Shigeru Morikawa, Department of Veterinary Medicine, Microbiology Course, Okayama University of Science.

#### **Testing organization**

Professor Shigeru Morikawa's led research group at the Department of Microbiology in the Faculty of Veterinary Medicine from the Okayama University of Science

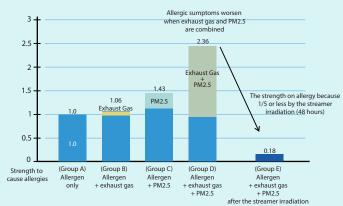
#### **Test method**

Two acrylic boxes of about 31L were mounted inside a safety cabinet. One box was equipped with a Streamer discharge device and the other box was not. A see-saw rocking motion shaker was placed in each box, and a six-well plate was placed on top of the motion shaker. Virus solution measuring 0.5 ml was put into each well of the plates, and Streamer irradiation was performed while agitating the solution using the motion shaker (approximately 12 times per minute). Virus solution was collected from two wells every hour for three hours, and viral load was measured. The viral load of SARS-CoV-2 was quantified by the TCID50 method using Vero E6 / TMPRSS2 cells.

## Simultaneous decomposition of pollen + exhaust gas and PM2.5 which aggravate hay fever

Demonstration test results confirmed that Streamer technology decomposes cedar pollen. At the same time, it also decomposes exhaust gas (diesel exhaust particles) and PM2.5, which aggravate hay fever, and dramatically reduces the intensity of allergic reactions.

## Pollen + exhaust gas + PM2.5 are decomposed at the same time, reducing the allergenic strength by 92.4%



#### **Experimental results**

In the test, the allergenic strength of Group D, which had exhaust gas and PM2.5 added to the allergen, was 2.36 times higher than Group A, which contained only the pollen allergen. This suggests that the simultaneous administration of a mixture of exhaust gas and PM2.5 enhanced the immune reaction that causes allergy symptoms such as hay fever.

On the other hand, the allergenic strength of Group E, which was exposed to the Streamer for 48 hours, was reduced by 92.4% compared to Group D.

\* This is the demonstration result using a streamer discharge device for testing. The effect of products equipped with Streamer technology or the effect in actual use environment may differ.

#### **Testing organization**

Demonstrated at Yamagata University under the supervision of Professor Shirasawa, Tohoku Bunka Gakuen University.

#### **Test method**

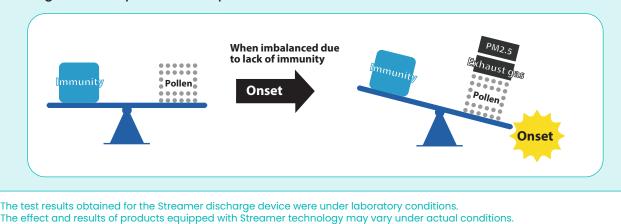
A comparative experiment was performed on 3 groups of mice. (Group A) allergen, (B group) allergen + exhaust gas, (C group) allergen + PM2.5, (D group) allergen + exhaust gas + PM2.5, (Group E) allergen + exhaust gas + PM2.5 after the Streamer irradiation, was administered respectively. Administration to mice was continued every 2 weeks, and 8 weeks later, IgE antibody<sup>11</sup> concentration in the blood of the mice was measured. We used ovalbumin as the allergen, which is a typical substance used in immunity experiments as an alternative to pollen.

\*1: When a reaction with an allergen occurs in the body, an IgE antibody that can bind only to the allergen is produced, and when the reentered allergen reacts with the IgE antibody, various allergic symptoms are caused. Since it is detected only in a very small amount in healthy people, it is generally used for immunological tests.

### Hay fever development

Adjuvant substances that worsen allergic symptoms may adhere to pollen, which may upset the balance that was previously maintained and increase the risk of developing hay fever.

#### • The Image of the hay fever development



# Decomposes molds and mites (feces and carcasses) and suppresses the causes of allergies.

Demonstration test results confirmed that Streamer technology decomposes molds and mites (feces and carcasses) and suppresses the causes of allergies.

#### Demonstration of mold

#### Picture of molds

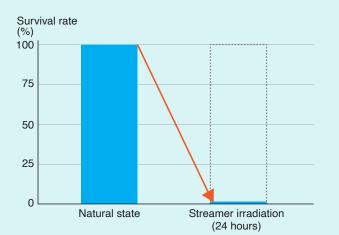




**Testing Organization** Joint research was performed with Wakayama Medical University.

#### **Test method**

"Molds" were placed on the electrodes of a Streamer discharge unit where they were exposed to Streamer discharge for 15 minutes and photographed with an electron microscope.



#### Demonstration of mold suppression

#### **Experimental Results**

Demonstration test results confirmed that 99.9% of the molds was suppressed in 24 hours by Streamer irradiation.

#### **Test Organization**

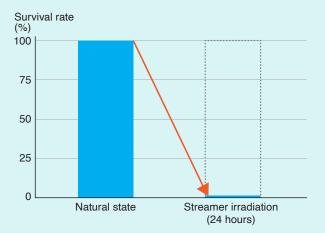
Demonstration test was performed at Japan Food Research Laboratories.

#### **Test Method**

A test piece in which the bacterial solution was cultured was placed in a container, the test Streamer discharge device was operated, and the viable cell count was measured after 24 hours.

Note: It is important to show that this could only suppress 99.9%, but not 100%, which might lead the misunderstanding to the customers.

#### Demonstration of mite allergy suppression (feces and carcasses)



#### **Experimental results**

Demonstration test results confirmed 99.6% suppression of mite allergy (feces and carcasses) after 24 hours of Streamer irradiation.

#### **Test organization**

Demonstration test was performed at Wakayama Medical University.

#### **Test method**

Allergen analysis was confirmed by ELISA method using a test Streamer discharge device.

Note: It is important to show that this could only suppress 99.9%, but not 100%, which might lead the misunderstanding to the customers.

#### Relationship between molds, mites, and allergies

Since both molds and mites prefer a moist environment, they breed when humidity is high. Moreover, because mites in the room feed on molds, mites are more likely to occur in places where molds breed. When these molds and mite feces and carcasses contact human skin or are inhaled, they cause various allergy symptoms such as atopic dermatitis, asthma, rhinitis, and itchy eyes.

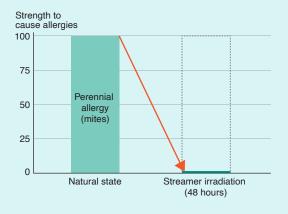
# Decomposes the house dust (mite feces and carcasses) that causes perennial allergy symptoms

Demonstration test results confirmed that Streamer technology decomposes the house dust (mite feces and carcasses) that causes perennial allergies. It was also shown that the combination of perennial and seasonal allergies can aggravate or increase the likelihood of developing allergy symptoms. However, using Streamer to decompose these causative substances helps prevent allergy symptoms from developing.

#### Suppression of allergy symptoms caused by mites (feces and carcasses)

#### **Experimental results**

Demonstration test results confirmed that Streamer irradiation is effective in suppressing 99% or more of the allergy symptoms caused by mites (feces and carcasses) in 48 hours.



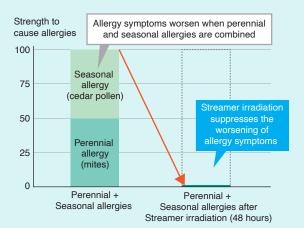
#### **Test organization**

Demonstration test was performed at Yamagata University under the supervision of Professor Nobuyuki Shirasawa, Tohoku Bunka Gakuen University.

#### **Test method**

House dust mite antigen (Dermatophagoides pteronyssinus), a typical causative agent of perennial allergies, was irradiated by Streamer at different times. The inactivation rate (the rate of loss of allergic ability) was measured by the allergen activity before and after irradiation by the ELISA method (a method of detecting and quantifying the ability of an allergen to bind to an antibody by using an enzymatic reaction).

#### Suppression of allergy symptoms caused by mites (feces and carcasses) + cedar pollen



#### **Experimental results**

Demonstration test results confirmed that Streamer irradiation is effective in suppressing 99% or more of the deterioration of allergy symptoms caused by mites (feces and carcasses) and cedar pollen in 48 hours.

#### **Test organization**

Demonstration test was performed at Yamagata University under the supervision of Professor Nobuyuki Shirasawa, Tohoku Bunka Gakuen University.

#### **Test method**

House dust mite antigen (Dermatophagoides pteronyssinus), a causative agent of perennial allergies, and cedar pollen antigen, a typical causative agent of seasonal allergies, were irradiated by Streamer at different times. The inactivation rate (the rate of loss of allergic ability) was measured by the allergen activity before and after irradiation by the ELISA method (a method of detecting and quantifying the ability of an allergen to bind to an antibody by using an enzymatic reaction).



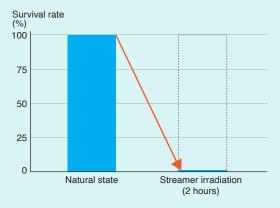
### Decomposes and suppresses Moraxella bacterium, Decomposes the cause of damp odor for laundry

The Moraxella bacterium is known to be the cause of the unpleasant damp odor that occurs when drying clothes indoors. Research has confirmed that Streamer technology decomposes and suppresses the bacteria causing this damp odor.

#### Demonstration of suppression of Moraxella bacterium Bacillus (causative agent of the laundry's damp odor)

#### **Experimental results**

Demonstration test results confirmed that Moraxella bacterium (causative agent of the laundry's damp odor) was 99.8% decomposed and suppressed in 2 hours after Streamer irradiation.



#### **Test organization**

Demonstration test was performed at Japan Food Research Laboratories.

#### **Test Method**

A sample containing 2 ml of the test bacterial solution in a petri dish (60 mm) was left to stand in the Streamer generator. The suppression effect was obtained from the results of measuring the number of bacteria after 1, 2, 3, 4, and 6 hours. The Streamer discharge device and test bacteria were provided by Daikin. This was measured 3 times.

Note: From the above image, it seems like the graph is incomplete and not properly factored-in with descriptions.

#### To suppress laundry's damp odor, it is ideal to dry it within 5 hours!

The most important factor for preventing a damp odor when hanging laundry to dry indoors is the "time elapsing from the end of washing to the end of drying." Because Moraxella bacteria explosively grows after about 5 hours, you need to dry laundry within 5 hours of washing so that you can largely suppress a damp odor. The trick to drying clothes indoors is to first hang them in a well-ventilated place. Many people hang laundry on a curtain rail, but that is the worst place to hang laundry since moisture and germs naturally accumulate near the window. This makes it necessary to devise an effective method for hanging clothes.

"Arch drying" is a method in which wet clothes hang on a square hanger in an arch pattern with the long-hanging clothes placed at both ends and the short-hanging clothes placed in the middle. "Ghost drying" is a method in which the sleeves of a long-sleeved shirt rest on a separate hanger. In addition to these methods, using a dehumidifier or air conditioner equipped with an air cleaning function is recommended to combat bacteria growth.

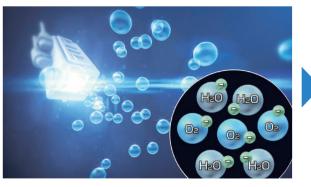
People worried about laundry odor are encouraged to use these tricks to help prevent that unpleasant laundry odor.



## Daikin's Active Plasma Ion Technology

The plasma ion technology uses plasma discharge to release ions into the air, which combine with components of the air to form active species with strong oxidizing power like OH radical. They attach to the surface of fungi and allergens and decompose proteins in the air by oxidation.

#### Assumed mechanism of elimination



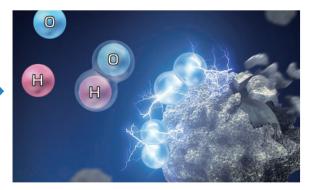


Image is for illustrative purposes

Daikin's plasma ions have been proved to be safe. Safety concerning effect on skin, eyes, and respiratory organs. Testing organization: Life Science Laboratories, Ltd. Name of test: repeated-dose toxicity test Test number: 12-II A2-0401

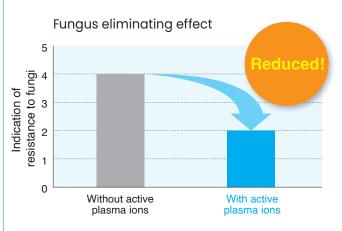
#### Concentration: 25,000 ions/cm<sup>3\*1</sup>

#### Note:

<sup>1</sup> The number of ions per 1cm<sup>3</sup> of air blown into the atmosphere measured near the air outlet during operation with maximum airflow. Test conditions: temperature 25°C, humidity 50%

These are effects in an active plasma ion test space and not verification results in an actual operation space.

#### **Reduction of attached fungi**

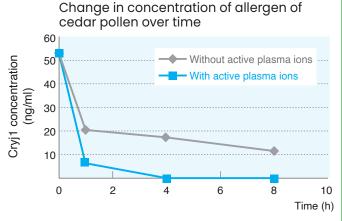


Test name: test of resistance to fungi.

Testing organization: Japan Spinners Inspecting Foundation. Test number: 019190-1.

Test result: After cultivation in a 9L container according to Japanese Industrial Standard JISZ2911, generation of fungi was reduced to less than half.

#### **Reduction of allergens**



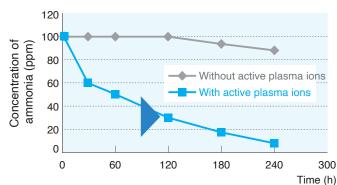
Test name: Test of reduction of allergen of cedar pollen. Testing organization: ITEA/Institute of Tokyo Environmental Allergy.

Test number: 11MRPTMAY031.

Test result: Allergen of cedar pollen in a 45L container was reduced by more than 95.5% in about 8 hours.

#### Deodorisation



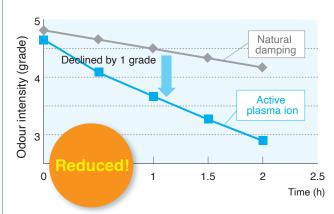


Test name: Deodorisation test.

Testing organization: Japan Spinners' Inspecting Foundation. Test number: 200097-1.

Test result: In a 5L container, ammonia was reduced by 92.3% in about 240 minutes.

#### **Removal of attached odour**



Effect to remove attached odour

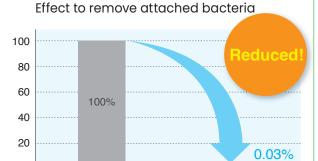
Test method: In a test chamber of a size of about 6 tatami mats, evaluated deodorising effect on a piece of cloth to which tobacco odour components were attached by 6-grade odour intensity indication method.

Test result: Odour intensity declined by 1 grade in about 1 hour (tested by Daikin).\*

A one-grade decline of odour intensity means a 90% reduction of odour.

\* The deodorisation effect varies depending on the ambient environment (temperature and humidity), operation time, odour, and the type of fiber.

#### **Reduction of attached bacteria**



With active

plasma ions

Without active

plasma ions

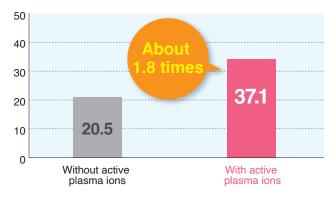
Test name: antibacterial test.

0

Testing organization: Japan Spinners' Inspecting Foundation. Test number: 028669.

Test result: In a 9L container, reduced by more than 99.97% in 24 hours

#### Increase of skin moisture



Change in skin moisture (difference in integrated skin moisture of 120 minutes)

Organization: Soiken (Comprehensive Medical Science Laboratory).

Number: MII-2010-10.

Method: Measured skin moisture of 8 healthy women prone to skin dryness in a room of about 6 tatami mats under conditions with and without active plasma ions.

Result: Skin moisture increased by about 1.8 times in about 120 minutes.

\* Actual effect will vary depending on room conditions and method of use.

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