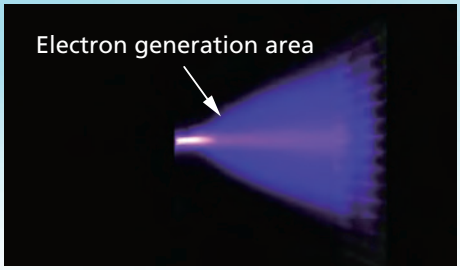
Reference | Streamer Technology

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



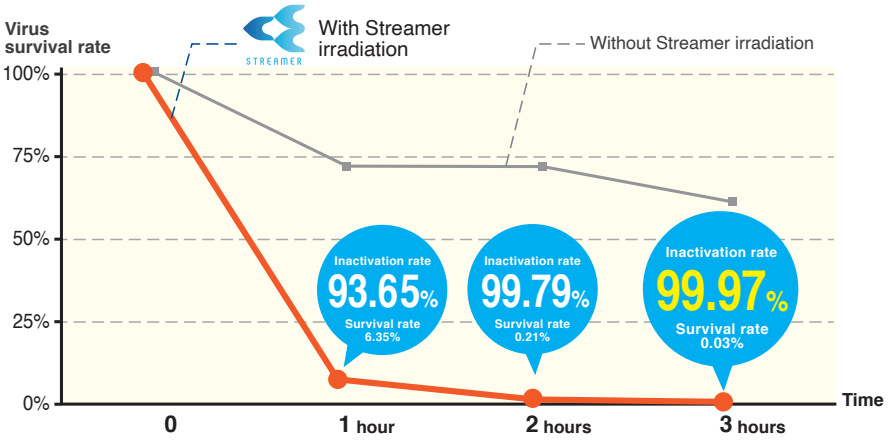
Note:
*1 Comparison of oxidation decomposition.
This does not mean temperature will become high.

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

Experimental Results

Daikin Industries, Ltd., in collaboration with a group of research professors led by Professor Shigeru Morikawa from the Department of Microbiology in the Faculty of Veterinary Medicine at the Okayama University of Science, has demonstrated the inactivating effects of Streamer technology on 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.



Source:
"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.

The test results obtained for the Streamer discharge device were under laboratory conditions.
The effect and results of products equipped with Streamer technology may vary under actual conditions.

Test Organization

Testing was performed by a research group at the Department of Microbiology in the Faculty of Veterinary Medicine from the Okayama University of Science and was led by Professor Shigeru Morikawa.

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.

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.

■ A clean technology that's recognised by public institutions★ in Japan and abroad.

★Following experiments were practised by third parties based on DAIKIN industries, Ltd's request.

	Target of experiment	Testing organization	Report date
Virus	Norovirus	Kobe University Graduate School	12-Jan-2007
	New strain of influenza virus (Type A-H1N1)	Vietnam National Institute of Hygiene and Epidemiology	14-Sep-2009
	Highly pathogenic avian influenza virus (Type A-H5N1)	Vietnam National Institute of Hygiene and Epidemiology	16-Apr-2009
	Influenza virus (Type A-H1N1)	Kitasato Research Center for Environmental Science	31-Jul-2009
	Influenza virus (Type A-H3N2)	Shanghai City Center for Disease Control and Prevention, etc.	8-Feb-2010
	RS virus	Wakayama Medical University	13-Apr-2012
	Adenovirus	Kitasato Research Center for Environmental Science	23-Jun-2017
	Coxsackievirus		
	Enterovirus		
	Echovirus		
	Meals		
	Mouse Norovirus	The University of Tokyo Graduate School	11-Oct-2018
	Mouse Hepatitis Virus A59 (MHV-A59)	The University of Tokyo Graduate School	28-Apr-2020
	Novel Coronavirus (SARS-CoV-2)	Okayama University of Science	8-Jul-2020
Bacteria	Bacteria (Escherichia coli/O-157)	Japan Food Research Laboratories	8-Apr-2004
	Bacteria (Staphylococcus aureus)		8-Apr-2004
	Toxin (Enterotoxin)		25-Aug-2004
	Tubercle bacilli (ECG mutant)	Kitasato Research Center for Environmental Science	8-Mar-2010
	Bacteria (Tubercle bacilli/Clinical strain)	The Jikei University School of Medicine	15-Feb-2010
	Bacteria (Vancomycin-resistant enterococci/VRE)	Japan Food Research Laboratories	19-Feb-2010
	Bacteria (Methicillin-resistant Staphylococcus aureus/MRSA)		19-Feb-2010
	Pseudomonas aeruginosa		12-Apr-2010
	Bacillus, Serratia, and Arthrobacter		29-Sep-2010
	Bacteria (Escherichia coli/ATCC)		10-Sep-2018
	Moraxella bacteria		10-Jun-2019
Mould	Mould (Black Mould)	Japan Food Research Laboratories	28-Sep-2004
Allergens	Moulds and mites (feces and carcasses)	Wakayama Medical University	14-Sep-2004
	Pollen + Exhaust gas + PM2.5	Yamagata University under the supervision of Professor Shirasawa, Tohoku Bunka Gakuen University	8-Nov-2017
	Mites (feces and carcasses) + Cedar pollen		27-Sep-2019
	Pollen (16 kinds)	L.S.L. Asaka Research Laboratory under the supervision of Project Professor Kusakabe, graduate school of the University of Tokyo	23-Jan-2020
Hazardous gases	Adjuvant suppression effect (DEP)	Wakayama Medical University National Institute for Environmental Studies	1-Nov-2005
	Adjuvant (VOC)	Tohoku Bunka Gakuen University	8-Dec-2006

*This result was obtained by using a Streamer discharge device for testing in lab conditions.
The effect of products equipped with Streamer technology or results in actual use environments may differ.

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.

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