

Mar 1, 2022

## World First\*1 Verified Inhibitory Effect of Hydroxyl Radicals Contained in Water (Nano-Sized Electrostatic Atomized Water Particle) on Adhered Novel Coronavirus in a 24 m<sup>3</sup> Test Space

**Osaka, Japan** – Panasonic Corporation today announced that the company, in collaboration with the Japan Textile Products Quality Technology Center, has verified the inhibitory effect of the technology using "hydroxyl radicals contained in water" on novel coronavirus adhering in a 24 m<sup>3</sup> test space. This is the first time in the world that the inhibitory effect on adhering novel coronavirus has been verified in a test space almost as large as a daily living space.

The mutation of the amino acid in the spike protein has caused new variant strains with different infectivity, transmissibility, and antigenicity such as the increased binding capacity to cells and reduced binding to neutralizing antibodies. Consequently, the global spread of the novel coronavirus shows no sign of abating. Research is underway to identify the properties of the current dominant Omicron strain, but the increase in secondary infections in households and other factors suggest that its infectivity has increased compared to conventional strains, and further infection prevention measures are crucial.

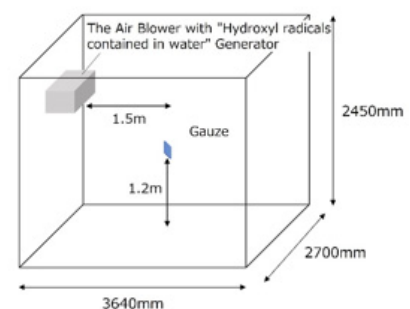
With regard to the technology using "hydroxyl radicals contained in water," Panasonic verified their inhibitory effect on the novel coronavirus (SARS-CoV-2)\*2 in July 2020 and its inhibitory effect on four novel coronavirus variants\*3 in November 2021. However, since the former verifications are the results of experiments in a small 45-liter test space, the effects in large spaces were only speculative.

Therefore, Panasonic carried out a comparative experiment in a 24 m<sup>3</sup> test space to compare virus titers with and without exposure to "hydroxyl radicals contained in water." A piece of gauze saturated with the Delta strain of the novel coronavirus was exposed to "hydroxyl radicals contained in water" for 8 hours and it was confirmed an inhibitory effect of more than 99%. Note that the verification results are based on a test in a closed test environment and not in a space actually in use.

Panasonic will continue to pursue the potential of the technology using "hydroxyl radicals contained in water" and provide safe and secure spaces in order to contribute to society.

### ■ Test details

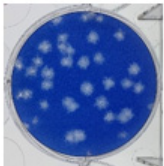
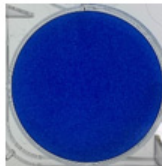
- Organization: Japan Textile Products Quality and Technology Center
- Period: November 2021
- Subjects: Delta strain of novel coronavirus
- Equipment: Generator of "hydroxyl radicals contained in water"
- Method: In a 24 m<sup>3</sup> (2700 mm × 3640 mm × 2450 mm) test space, place a piece of gauze saturated with the virus solution at a position 1.5 m from the generator of "hydroxyl radicals contained in water" and 1.2 m above the floor, and expose it to "hydroxyl radicals contained in water" (spread in the test space using air flow from an air blower installed on the wall surface).<sup>\*4</sup> Measure the virus titer and calculate the inhibition rate<sup>\*5</sup>



•Results:

Test subject	Time	Inhibition rate
Delta strain of novel coronavirus	8 hours	99.8%

•Photo of plaque:

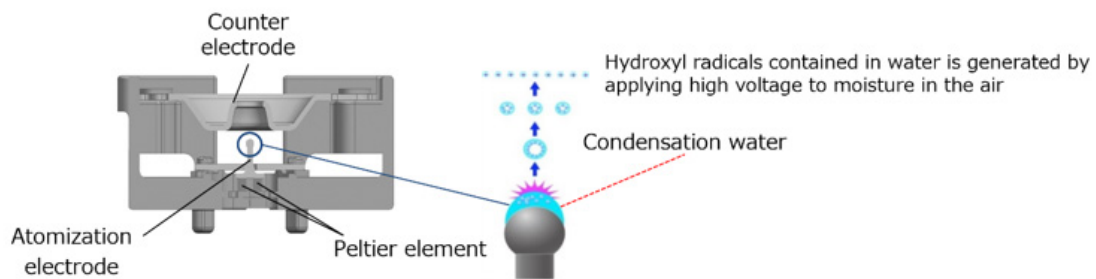
	Without exposure	With exposure
8 hours later		

■Conclusion

The reduction in virus infection titer of more than 99% against the Delta strain of the novel coronavirus with the technology using "hydroxyl radicals contained in water" was also verified in a 24 m<sup>3</sup> test space.

■Principle of generation of "hydroxyl radicals contained in water"

The atomization electrode is cooled by a Peltier element , which condenses moisture in the air to create water. Afterwards, a high voltage is applied across the atomization and the counter electrodes to generate "hydroxyl radicals contained in water" of approx. 5 to 20 nm in size.



**"Hydroxyl radicals contained in water" Generator**

\*1 Regarding ion emission type air cleaning technology (As of March 1, 2022, surveyed by Panasonic)

\*2 Verification of the inhibitory effect of hydroxyl radicals contained in water on the novel coronavirus (SARS-CoV-2) (Released in July 2020)

\*3 Verified jointly with the Japan Textile Products Quality and Technology Center

Since the same decreasing trend was observed in the viral infection titer of the novel coronavirus and the four mutant strains regardless of the strains, an expert suggests that the "hydroxyl radicals contained in water" technology does not affect the inactivation effect of viral mutations caused by some amino acid substitutions, and that the same results could be expected for mutant strains that may appear in the future if tests are conducted under the same conditions of 45 L.

\*4 Based on "Test method for evaluating air purifiers' performance in inhibiting viruses adhering indoors (established on July 4, 2011)" specified by the Japan Electrical Manufacturers' Association

\*5 Calculated by Panasonic

■Video explaining these verification results

<https://channel.panasonic.com/embed/35364/640/360/>

## Media Contact:

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### About Panasonic

Panasonic Corporation is a global leader developing innovative technologies and solutions for wide-ranging applications in the consumer electronics, housing, automotive, and B2B sectors. The company, which celebrated its 100th anniversary in 2018, operates 522 subsidiaries and 69 associated companies worldwide and reported consolidated net sales of 6,698.8 billion yen for the year ended March 31, 2021. Committed to pursuing new value through collaborative innovation, the company uses its technologies to create a better life and a better world for customers. Learn more about Panasonic: <https://www.panasonic.com/global>.

*\*The content in the following news releases is accurate at the time of publication but may be subject to change without notice. Please note therefore that these documents may not always contain the most up-to-date information.*