NEWS RELEASE

April 1, 2022

NBC Meshtec Inc.

Patented Technology "Cufitec™ Anti-viral Technology Utilizing Monovalent Copper Compound" Confirmed to have Certain Inactivation Effect by One-hour Sensitization on Multiple Variants of the Novel Coronavirus (SARS-CoV-2) Including the Omicron Variant*

NBC Meshtec Inc. (President: Tetsuya Kaji, hereinafter referred to as "NBC Meshtec"), a Nisshin Seifun Group company, confirmed at Obihiro University of Agriculture and Veterinary Medicine that the company's proprietary technology "Cufitec™ anti-viral technology utilizing monovalent copper compound" showed a certain inactivation effect by one-hour sensitization against multiple variants of COVID-19 (SARS-CoV-2).

*In this release, "Omicron variant" refers to variant BA.1 of the novel coronavirus (SARS-CoV-2).

■Verification study on inactivation effect of patented technology Cufitec™ on the Omicron variant of the Novel Coronavirus (SARS-CoV-2)

NBC Meshtec has confirmed a certain inactivation effect of 'Cufitec™ Anti-viral Technology Utilizing Monovalent Copper Compound' in the short term against the novel coronavirus (SARS-CoV-2) and published a news release on November 11, 2020.

This time, inactivation effect against the **Omicron variant, a BA.1 variant of the novel coronavirus (SARS-CoV-2)**, was tested in a study conducted by Obihiro University of Agriculture and Veterinary Medicine. As a result, a certain inactivation effect was confirmed in one-hour sensitization using a **dispersion of Cufitec™ materials, film processed with Cufitec™, and cotton non-woven fabric processed with Cufitec™.**

[Inactivation effect on Omicron variant]
- **Dispersion of Cufitec™ materials**: **99.98% or more decrease in 1 hour**[*1] compared to sterile ultrapure water
- **Film processed with Cufitec™**: **99.90% or more decrease in 1 hour**[*2] compared to unprocessed film
- **Cotton non-woven fabric processed with Cufitec™**: **99.90% or more decrease in 1 hour**[*3] compared to unprocessed cotton cloth

*1*2*3 Each test method is described in Attachment 1.

We have also conducted tests on **Alpha, Beta, Gamma, and Delta variants**, and confirmed the effects on these as shown in **Attachment 1**.

Note that this is a laboratory test and does not demonstrate the effectiveness of products using Cufitec™ or actual usage environments. Furthermore, it is not intended to verify the efficacy of Cufitec™ materials or Cufitec™ processed products in preventing SARS-CoV-2 infections.

■Cufitec™ is a patented proprietary technology

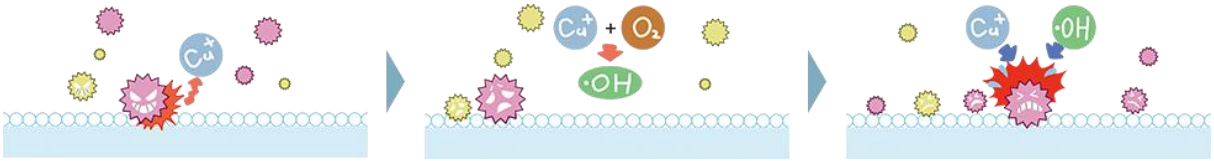
Since 2009, NBC Meshtec has been offering "Cufitec™ anti-viral technology utilizing monovalent copper compound" as a technology to provide clean, safe, and comfortable environments and to protect against invisible threats such as viruses and bacteria. The technology was developed with

the following objectives: **"Be effective against a wide range of microorganisms (viruses and bacteria)," "Be fast-acting (reduce viruses and bacteria in a short time)," and "Be strongly effective (prevent viruses and bacteria from spreading)."** We have tested its inactivation effect against viruses such as influenza viruses and feline calicivirus, as well as bacteria such as Escherichia coli and Pseudomonas aeruginosa.
The anti-viral technology using monovalent copper compound is a proprietary technology of NBC Meshtec, for which international patent applications have been filed, and which has been patented in Japan and other major countries.

■Mechanism of Cufitec™ patented anti-viral technology

The monovalent copper compound used in Cufitec™ produces reactive oxygen because the monovalent copper ions eluted from the monovalent copper compound are more readily oxidized than the divalent copper ions. This reactive oxygen acts to suppress the action of microorganisms, exerting immediate and strong anti-viral and anti-bacterial effects (Fig. 1).

Figure 1. The Anti-viral and anti-bacterial mechanism of Cufitec™



When monovalent copper nanoparticles collide with viruses or bacteria, monovalent copper ions are eluted into moisture.

The monovalent copper ions react with oxygen, producing reactive oxygen.

Copper ions and reactive oxygen together work to reduce viruses and bacteria.

NBC Meshtec will continue to develop "Cufitec™ anti-viral technology utilizing monovalent copper compound" to create clean, safe, and comfortable environments.

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Please direct any inquiries regarding technologies to:
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■Handling of information in this news release

(Attachment 1)

The results of tests on the inactivation effect against multiple variants of the novel coronavirus (SARS-CoV-2) including the Omicron variant BA.1 are as follows.

Variants	Sensitization time	Virus inactivation rate (%)		
		Dispersion test*1	Film test*2	Cotton non-woven fabric test*3
Alpha	1 hour	≥ 99.61%	≥ 99.88%	≥ 98.22%
Beta		≥ 97.39%	≥ 99.65%	≥ 97.94%
Gamma		≥ 99.68%	≥ 99.43%	≥ 98.84%
Delta		≥ 99.43%	≥ 99.84%	≥ 99.84%
Omicron		≥ 99.98%	≥ 99.90%	≥ 99.90%

(Testing method)

*1 Equal amounts of 750 μg/ml of monovalent copper compound dispersion and virus solution (viral titer: about 7.25 $\log_{10}$ $TCID_{50}$/ml) were mixed to examine the virus infectivity titer after 1 hour by $TCID_{50}$. (The test method is the mutatis mutandis application of the antiviral evaluation test conducted at Obihiro University of Agriculture and Veterinary Medicine in “Efficacy Assessment of Disinfecting Substances Alternative to Alcohol Against SARS-CoV-2” of the National Institute of Technology and Evaluation (NITE)

*2 After dropping 60 μl of virus solution (virus titer: about 6.25 Log_{10} $TCID_{50}$/ml) on a film, a 1.5 cm square film was placed on the top to make the processed surface contact the liquid, and the virus titer after 1 hour was evaluated by the $TCID_{50}$ method.

*3 60 μl of virus solution (viral titer: about 7.25 $\log_{10}$ $TCID_{50}$/ml) was dropped on a non-woven fabric to examine the virus titer after 1 hour by $TCID_{50}$.