

November 11, 2020

NBC Meshtec Inc.  
Patented Technology “Cufitec™ Anti-viral Technology Utilizing Monovalent Copper Compound” Confirmed to have **Short-term Certain Inactivation Effect on the Novel Coronavirus (SARS-CoV-2)**

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 and Japan Textile Products Quality and Technology Center (QTEC) that the company’s proprietary technology “Cufitec™ anti-viral technology utilizing monovalent copper compound” showed a certain inactivation effect in a short term against the novel coronavirus (SARS-CoV-2).

■Verification study on the inactivation effect of patented technology Cufitec™ on the novel coronavirus (SARS-CoV-2)

An experiment was conducted at Obihiro University to verify the inactivation effect of “Cufitec™ anti-viral technology utilizing monovalent copper compound” against the novel coronavirus (SARS-CoV-2).

As a result of mixing and reacting the dispersion of Cufitec™ with virus stock solution, it was confirmed that Cufitec™ **reduces SARS-CoV-2 by over 99.87% in 1 hour\***<sup>1</sup> compared to sterilized ultrapure water.

In addition, an experiment at QTEC, a testing organization for textile products, on **nonwoven fabrics and films processed with Cufitec™ showed an over 99.96% reduction**<sup>2</sup> of SARS-CoV-2 in an hour for the nonwoven fabrics, and **over 99.99% reduction in four hours**<sup>3</sup> for the films processed with Cufitec™.

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

\*2 Test method according to JIS L1922

\*3 Test method according to ISO 21702

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 confirmed its inactivation effect against viruses such as influenza viruses and feline calicivirus, as well as bacteria such as

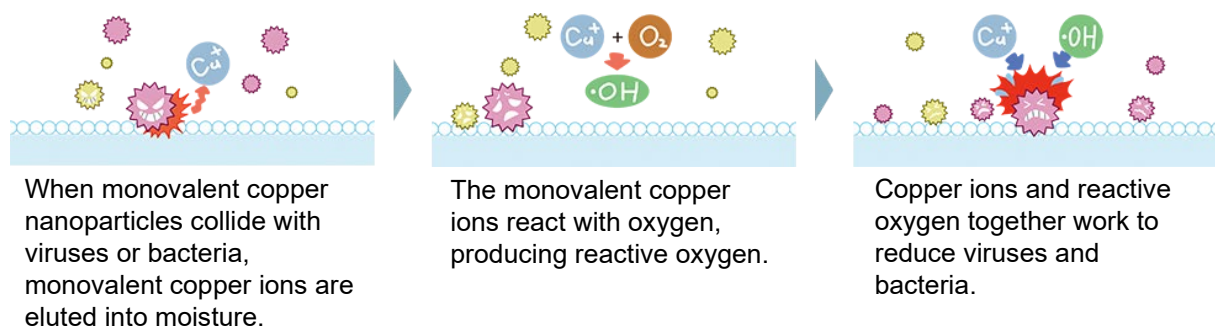
Escherichia coli and Pseudomonas aeruginosa, through in-house tests, at public testing bodies, and in field tests under real environments.

The anti-viral technology using monovalent copper compound is proprietary technology of NBC Meshtec, for which an **international patent application** was filed in August 2009, 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 is 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™



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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