The US FDA approved the N95 respirator technology, which can be reused 20 times in the Covid-19 epidemic

The method was developed by Battelle, a science and technology company based in Columbus-Ohio. The FDA document describes Battelle's technology using a vaporized hydrogen peroxide chamber (VPHP) to kill pathogens including SARS-CoV-2 virus.

In the midst of a shortage of medical protective equipment during the COVID-19 pandemic, the U.S. Food and Drug Administration (FDA) has approved a method of decontamination of N95 respirators for reuse.

The method was developed by Battelle, a science and technology company based in Columbus-Ohio. The FDA document describes Battelle's technology using a vaporized hydrogen peroxide chamber (VPHP) to kill pathogens including SARS-CoV-2 virus.

This sterilization chamber has 5 all chemical criteria, including hydrogen peroxide concentration and vapor pressure. After 150 minutes are put in it, the N95 respirator will be completely free of bacteria and germs.

Battelle said that each of its VPHP chambers could decontaminate 80,000 N95 masks each day for reuse. And each mask can be recalled for reuse 20 times, as long as they are not visibly stained and are not made from cellulose-containing material.

Battelle currently has two VPHP offices in Ohio, which are deploying three more to New York, Seattle and Washington DC. That means the United States can reuse up to 400,000 N95 masks each day.

" *Based on all the scientific evidence that FDA has at the present time, Battelle's decontamination system is believed to be effective in preventing exposure to pathogens that spread in the air, in the middle of the air," she said. scene does not have enough supply of specialized masks for pandemic COVID-19* ", written by FDA.

" *By decontamination, an N95 mask contaminated with SARS-CoV-2, or any other pathogenic microorganism, can be reused up to 20 times."*

Battelle's decontamination system is an independent decontamination unit that uses vapor-phase hydrogen peroxide (VPHP) to decontaminate potentially contaminated N95 masks including SARS-CoV-2. This technology has been developed by Battelle since 2014 and submitted the test results to the FDA in 2016.

Studies from the 1970s until recently show that hydrogen peroxide can inactivate many virus strains including flu and corona, based on its high oxidizing properties.

Based on these research results, the idea of ??using hydrogen peroxide vapor to disinfect N95 respirators has been applied by many scientific institutions in the United States. Duke University says it is developing such a method.

The scientists here can use a specialized device to vaporize hydrogen peroxide. After that, this vapor is rushed into all N95 respirator layers to kill all pathogens, including viruses, without denaturing the material.

" *This is a decontamination technology and method that we have used for many years in our lab , "* said Scott Alderman, deputy director of the Duke Regional Biological Laboratory.

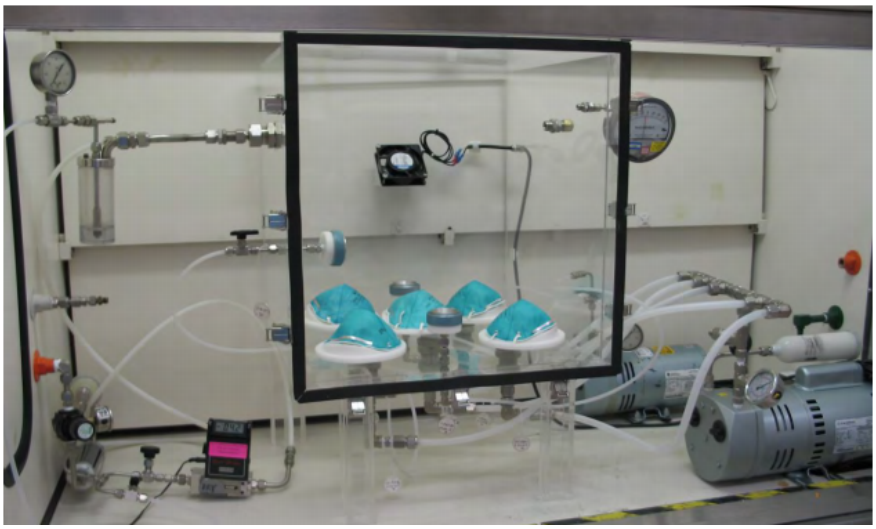
Meanwhile, Matthew Stiegel, director of the Office of Environmental and Occupational Safety at Duke University, said in a shortage of N95 masks, they will start using the technology at all three affiliated hospitals. yourself.

Ideally, the N95 respirator should only be used once and thrown away. However, the middle of the COVID-19 pandemic is not an ideal time.

Duke University allows the use of hydrogen peroxide to decontaminate N95 respirators based on studies published since 2016. Although this procedure has been shown to be effective, however, it is rarely used. because shortage is rare.

" *Reusing N95 respirators will help increase the capacity of hospitals, in protecting frontline health workers [between the COVID-19 pandemic] when N95 masks are severely deprived* ," said Dr. Cameron Wolfe , said an assistant professor of medicine and infectious disease specialist.

Dr. Monte Brown, vice president of Duke University Health System, revealed that the team is working to develop a standard procedure for disinfecting and reusing N95 respirators with hydrogen peroxide.



" *We are confident that we are using a proven decontamination method , "* he said. " *This is a proven method for many years. If we can reuse masks even once or twice, it will bring a huge benefit in the current shortage situation."*

Dr. Brown added that many companies and research units have now applied for licenses for industrial N95 respirators. One of them is Battelle's system.

The FDA previously allowed Battelle to decontaminate only 10,000 masks in each of its vapor-phase hydrogen peroxide machines. However, Mike DeWine, Ohio's governor, said that the FDA's limit is not scientific, because the evidence shows that the process of decontamination with hydrogen peroxide is effective.

In today's Ohio emergency situation, Battelle can operate at full capacity to disinfect 160,000 N95 masks daily.

DeWine spoke with President Donald Trump both on the phone and Twitter to urge the FDA to lift its restriction order. Later, President Trump tweeted an article about Battelle's invention: "The *FDA needs to work urgently. Hopefully they will approve this mask decontamination device as soon as possible."*

So far, the FDA has officially approved Battelle's technology and has allowed it to operate at its true capacity. Battelle has also shipped its three decontamination masks to New York, Seattle and Washington DC.

That means the United States is now able to produce up to 400,000 reusable N95 respirators each day to make up for the lack of personal protective equipment during the COVID-19 pandemic.