

# **Efficacy of EZ Safer Surface on SARS-CoV-2, as an active surface disinfectant: An environmental bioburden study on nonporous and porous surfaces**

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## **ABSTRACT**

Background: COVID-19 is produced by the novel coronavirus identified as SARS-CoV-2. At this time, it is known that the virus primarily affects the respiratory system causing illness ranging from mild to severe disease and death, and some people infected with the virus never develop symptoms. Transmission can occur through direct, indirect, or close contact with infected people through infected secretions, such as saliva and respiratory secretions or their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks, or sings. These respiratory droplets expelled by infected individuals can contaminate surfaces and objects, i.e., fomites (contaminated surfaces). Viable SARSCoV-2 virus and/or their RNA can be found on those surfaces for periods ranging from hours to days. Therefore, the transmission may also occur indirectly through touching surfaces in the immediate environment or objects contaminated with viruses from an infected person, followed by touching the mouth, nose, or eyes.

Study: The present scientific study was conducted by an independent third-party lab using an EPA registered pesticide product applied on tagged SARS-CoV-2 virus (COVID-19) species, privately sourced from a research repository licensed by the Center for Disease Control (CDC). The pesticide product is a proprietary natural formulation by Ageless Holdings, LLC. labeled EZ Safer Surface. It was applied as a fine mist on the surface materials, which included glass as a nonporous element and cardboard as a porous element.

Conclusion: The results scientifically proved that EZ Safer Surface killed 99.9% of the SARS-CoV-2 virus (COVID-19) on both surface types in under 2 minutes, and no regrowth was observed.

## **INTRODUCTION**

In early March 2020, Environmental Protection Agency (EPA) released, List N: Disinfectants for Use Against SARS-CoV-2 (EPA, 2020). This list began with 85 products and six months later had already reached 500 entries. There is a generalized assumption currently prevalent that all disinfectants approved by the EPA to use against SARS CoV-2, those on the list N, are effective at killing the virus. EPA has publicly denied any agency endorsement on the products on their approved list of disinfectants and states, "EPA expects all products on List N to be effective against SARS-CoV-2, the coronavirus that causes COVID-19."

However, less than 1% of the products have demonstrated efficacy based on test data directly on SARS-CoV-2. Less than 5% have demonstrated efficacy based on testing on a different coronavirus. The rest of the products, 95% of the list, were included based on an expectation that when instructions on the label are followed correctly, they will be effective against SARS-CoV-2 because they are effective against a presumed harder to kill microorganism. When reviewing the label instructions, we realized that only ten products on this list are effective under 5 minutes of contact time with no-rinse. In fact, 242 products, or 48% of the disinfectants on EPA List N, require more than 5 minutes of contact time and need post-rinse because of their toxicity level. This may work when cleaning a bathroom or disinfecting kitchen surfaces, but it is certainly not practical for routine sanitizing on a home, institutional, or healthcare environment.

We challenged this assumption and discovered that it is grossly misleading. Independent lab test on 91% alcohol (one of many things assumed to kill SARS-CoV-2) only inactivated the SARS-CoV-2 virus at a 38% effective rate. Tests also showed regrowth of the virus within 24 hours.

This preliminary study was to identify the most effective formulation of EZ Safer Surface. Out of 5 different chemistries, the lowest-performing was twice as effective as 91% alcohol. It is essential to mention that none of the disinfectants on the EPA List N contain 91% alcohol. The EPA requires a minimum of 70% alcohol in a disinfectant to be effective against COVID-19.

In a second SARS-CoV-2 bioburden elimination effectivity clinical study, on a hard, nonporous surface, the EZ Safer Surface formulation by Ageless Holdings demonstrated a 99.9% complete inactivation against the SARS-CoV-2 virus in less than 2 minutes, without mechanical aid (no wiping), no toxicity, no post-rinse, and no regrowth observed on any of the samples. A new assay was included. The same inactivation rate held true when applied to cardboard, a porous surface.

The main agents within the active composition of EZ Safer Surface are hydroxyl radicals and oxygen ions, the same species generated by ozone but present in a different ratio. Oxygen ions dominate in ozone charged waters. EZ Safer Surface recreates an aqueous environment like ozonized water; however, much faster and with a more efficient and more stable chemical dynamic by having hydroxyl radicals dominating over the oxygen ions. Ozone is widely known to be anti-viral and antibacterial. EZ Safer Surface exceeds ozone effectivity at all levels. It is also superior in that it generates a wider variety of highly reactive oxygen species in oxidative equilibrium, perpetually catalyzed by the vibrational energy of the electrolytes in solution. This is a powerful feature that readily destroys the biofilm of viruses and bacteria.

## **BACKGROUND**

COVID-19 is produced by the novel coronavirus identified as SARS-CoV2. As of the time this article is being published, it is still considered aviral pandemic that currently has no vaccine. Current measures to safeguard against the virus is by social distancing and wearing face masks. Treatments are being proposed at a significant cost. These treatments are in the realm of pharmaceuticals.

The University of Arizona stated that continuously active disinfectants could provide protection. "While disinfecting high contact surfaces is an important practice to prevent the spread of pathogens, these surfaces can be easily re-contaminated after the use of conventional surface disinfectants. Alternatively, continuously active disinfectants work to actively kill microorganisms and provide continued protection over an extended period of time." (Ikner et al., 2020) Associate research professor and lead author Luisa Ikner states, "During the course of respiratory illnesses such as COVID-19, aerosols released during sneezing and coughing contain infectious viruses that will eventually settle onto various surfaces." She continues, "Factors including temperature, humidity, and surface type can affect how long viruses such as SARS-CoV-2 will remain infectious after surface deposition". This statement addresses the issue of the viral resistance to traditional disinfectants and the high incidence of regrowth after a surface has been treated. Without lack of actual testing directly SARS-CoV-2 and scientific data proved; otherwise, she advises to assume that a one-time application of a disinfectant will not fully control the virus and will not be enough protection unless you increase effectiveness by using products that continue to stay active after the initial application.

Researchers from the Mel and Enid Zuckerman College of Public Health at the University of Arizona investigated the influence of antimicrobial

surface coatings at two urban hospitals to assess reductions of healthcare-associated infections. They found that there was a 36% reduction in hospital-acquired infections when using continually active antimicrobials. (Ellingson et al.,2019). These results demonstrated that a low performing disinfectant will not necessarily improve efficiency against SARS-CoV-2 by extending the contact time.

As an adjuvant management method, disinfectants are a simple and effective way of reducing the virus's spread. Disinfectants differentiate from other cleaning agents by eradicating germs and viruses as opposed to removing them. Cleaning does not kill germs or viruses but will lower the amount and decrease the risk of infection.

In May 2020, the CDC stated: "Current evidence suggests that SARS-CoV-2 may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for the prevention of COVID-19 and other viral respiratory illnesses in households and community settings."

General CDC recommendations for cleaning and disinfection of households with people isolated in-home care (e.g., suspected/confirmed to have COVID-19) are to clean and disinfect high-touch surfaces daily in shared household areas (e.g., tables, hard-backed chairs, doorknobs, light switches, phones, tablets, touch screens, remote controls, keyboards, handles, desks, toilets, sinks). There are online resources on their website and on the World Health Organization (WHO) site that provides guidance on cleaning and disinfection available to the public for other non-health and health settings. The current list of EPA – registered disinfectants can be found on the official EPA website. (EPA, 2020) This list includes over 500 disinfectants. Inclusion on List N does not constitute an endorsement by EPA. Different disinfectants may meet the criteria for use against SARS-CoV-2 (COVID-19). EPA updates this list weekly with additional products.

The public health response to COVID-19 depends on comprehensive laboratory testing data. The findings of Ageless Holdings on their EZ Safer Surface ready to use (RTU) formula when tested on the actual SARS-CoV-2 will contribute to better control of the spread of COVID-19 and a better understanding of its impact. Ageless Holdings has been actively testing on different mutations of the current virus strain since March 2020 using Clinical Studies, USA, at their flagship facility in Scottsdale, AZ.

Ageless Holding, LLC. chose Clinical Studies USA because of its excellent record and reputation domestically and worldwide. They are respected in both the Western and Eastern medicine philosophies and have

worked with Fortune 100 and 500 companies internationally. With its 23 locations in the United States, they have access to a knowledge base that can answer any question. Their credibility is well established.

## **TESTING/VALIDATION**

### **Clinical Studies USA**

The Leader in Natural Products Scientific Studies

Clinical Studies USA

Corporate Headquarters

TA Sciences/Clinical Studies USA/LifeAlyze LLC

420 Lexington Ave

New York, NY 10170

Las Vegas, NV

Scottsdale, AZ

Testing Laboratory ID

AZ90-1986-GL500936

IDL-HI34009-003-6701

### **REPORT ID:**

EZ001

EZ002

**REPORT ID:** EZ001

**STUDY DATE:** 10/22/2020

**Testing and Glass produced by:**

Steven Warren MD

**STUDY:** Bioburden Study

## **MATERIALS**

The study product is provided by Ageless Holdings, LLC. The product is an all-natural, water-based, EPA registered, EZ Safer Surface. In this study, the SARS-CoV-2 virus (COVID-19) is exposed to EZ Safer Surface only on glass nonporous surfaces.

In this study glass is used as a hard, nonporous surface element. There are no alterations to the materials (e.g. paint, coverings, sprays).

## **METHOD**

The study products were provided by Ageless Holdings, LLC. Two separate pieces of clean clear glass were used in this study. The glass samples were labeled, Glass 1 and Glass 2.

**Specialized Analytical Software Program Used:** Visiun's Laboratory Analytics Custom Microscope Analytics 8

## **Study Type:**

This study was completed on a solid, hard surface only. The materials used was glass

## **STUDY ENVIRONMENT:**

This study was conducted using SARS-CoV-2 virus (COVID-19) using a killed and tagged pathogen type

### **PROTOCOL:**

- 1)** 2 separate pieces of glass measuring 12 inches by 12 inches were used for each product test. Each piece was cleaned and dried. Sprays of the SARS-CoV-2 virus were sprayed over each piece of glass until the surface was well covered.
  
- 2)** EZ Safer Surface was dispensed by spray bottle onto the 2 pieces of glass. Sprays of the product was delivered to the glass surface until the surfaces were saturated.
  
- 3)** Testing was performed at timed intervals of 2 minutes and 24 hours. A standard swab was drawn over the center of the 12-inch surface of glass. This swab was used to produce a smear that was then evaluated by standard microbe software and a Clinical Laboratory Technician.

### **CONCLUSION:**

EZ Safer Surface was an effective disinfectant against the SARS-CoV-2 virus (COVID-19) on a non-porous material, i.e. glass. It killed 99.9% of the virus at 2 minutes, with no regrowth or fluctuation over a 24-hour period. (Fig. 1)



**REPORT ID:** EZ002

**STUDY DATE:** 10/22/2020

**Testing and Results produced by:**

Steven Warren MD

**STUDY:** Bioburden Study

**MATERIALS:**

The study product is provided by Ageless Holdings, LLC. The product is an all-natural, water-based, EPA registered, EZ Safer Surface. In this study, the SARS-CoV-2 virus (COVID-19) is exposed to EZ Safer Surface only on cardboard surfaces.

In this study standard brown cardboard stock is used as the porous surface element. There are no alterations to the material (e.g. paint, coverings, sprays). Two pieces of cardboard measuring 12 inches by 12 inches were used for each product test.

**METHOD:**

The study products were provided by Ageless Holdings, LLC. Two separate pieces of standard cardboard stock were used in this study. The cardboard samples were labeled, Cardboard 1 and Cardboard 2.

**SPECIALIZED ANALYTICAL SOFTWARE PROGRAM USED:** Visiun's Laboratory Analytics Custom Microscope Analytics 8

**STUDY TYPE:**

This study was completed on a porous surface only. The materials used included cardboard.

## **STUDY ENVIRONMENT:**

This study was conducted using SARS-CoV-2 virus (COVID-19) using a killed and tagged pathogen type

## **PROTOCOL:**

- 1)** 2 separate pieces of cardboard measuring 12 inches by 12 inches were used for each product test. Each piece was cleaned and dried. Sprays of the SARS-CoV-2 virus were sprayed over each piece of cardboard until the surface was well covered.
- 2)** EZ Safer Surface was dispensed by spray bottle onto the 2 pieces of cardboard. Sprays of the product were delivered to the cardboard surface until the surfaces were saturated.
- 3)** Testing was performed at timed intervals of 2 minutes and 24 hours. A standard swab was drawn over the center of the 12-inch surface of cardboard. This swab was used to produce a smear that was then evaluated by standard microbe software and a Clinical Laboratory Technician.

## **CONCLUSION:**

EZ Safer Surface was an effective disinfectant against the SARS-CoV-2 virus (COVID-19) on a porous material, i.e. cardboard. It killed 99.9% of the virus at 2 minutes, with no regrowth or fluctuation over a 24-hour period. (Fig. 1)

## Clinical Studies USA

For: Ageless Labs

Glass surface Pre-Study SARS-CoV-2 testing

Test Date: 10/22/2020

All data is measured in parts per million per square inch Surface Baseline post treatment 2 minutes, 24 hours

Surface Type	Initial	After Load	2 Minutes	24 Hours
Glass 1	0	1192	11	11
Glass 2	0	2026	13	12

10/23/2020

Cardboard

Surface Type	Initial	After Load	2 minutes	24 hours
CB 1	0	1540	13	13
CB 2	0	1845	12	11

Figure 1

## **SUMMARY:**

We have demonstrated that EZ Safer Surface will eradicate the SARS-CoV-2 virus on glass and cardboard surfaces at a 99.9% kill rate within 2 minutes with no regrowth in 24 hours. This test performed by Clinical USA, positions Ageless Holdings, as one of only three companies that have tested with confirmed effectiveness against the actual SARS-CoV-2 virus.

## **DISCUSSION:**

EZ Safer Surface is proven eradicator of SARS-CoV-2, COVID-19 pathogen. It can be used on non-porous surfaces, to include food preparation surfaces. Examples of non-porous surfaces include walls, tables, buffets, etc.

It also can be used on non-porous surfaces. Examples of porous surfaces include cardboard, fabric, carpets, rugs, drapes and some toys, all of which can be exposed to human contact.

EZ Safer Surface is a non-toxic product. It is an all-natural product and hypo-allergenic. EZ Safer Surface does not affect people with asthma, bronchitis, or other respiratory ailments. It can be used safely with the elderly, children and even with pets.

EZ Safer Surface may be used in both commercial and residential settings. Consumers are urged to look for products tested directly on the actual SARS-CoV-2 virus and shown to inactivate it in less than 5 minutes, with no regrowth. In the commercial setting, EZ Safer Surface may be used inside containers, fulfillment warehouses, restaurants, arenas, cafeterias, grocery store produce sections, etc. In the home it may be used in the kitchen, on masks, playrooms, etc.



## REFERENCES

Centers for Disease Control.: Interim Recommendations for U.S. Households with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) reviewed: May 27, 2020

[https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fcleaning-disinfection.html](https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fcleaning-disinfection.html)

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Environmental Protection Agency.: List N: Disinfectants for Use Against SARS-CoV-2 (COVID-19) (June, 2020) <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2-covid-19>

Ikner, Lusía A., Torrey, Jason R., Gundy, Patrica M., Gerba, Charles P.: A Continuously Active Antimicrobial Coating effective against Human Coronavirus 229E. released on medRxiv (May, 10, 2020)  
doi: <https://doi.org/10.1101/2020.05.10.20097329>