

A Supplement to “Get the FAQs: Disinfectants in the Fight Against COVID-19”

A Webinar hosted by Ecolab Healthcare North America on April 29, 2020

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[Hard, Non-Porous Surface Antimicrobials \(EPA Registered\)](#)

[Definitions](#)

- **What is the difference between COVID-19 and SARS-CoV-2?**
According to the World Health Organization (WHO) the naming conventions for the current pandemic are as follows:
 - The name of the virus – SARS-CoV-2
 - The name of the disease – COVID-19
- **How do I use the terms COVID-19 and SARS-CoV-2 correctly when discussing registered products?**
COVID-19 and SARS-CoV-2 have been used interchangeably in the media and in certain government documents. For some clarity on how to use the term in the most precise terms here are some examples of how to use the terms correctly:
 - A product is likely to kill SARS-CoV-2 (talking about the virus)
 - A product is likely to kill the SARS-CoV-2 virus or the virus that causes COVID-19 (talking about the virus -WHO has used these terms for simplicity of communication).
 - This product can be used during the COVID-19 pandemic (talking about the disease)
- **What is the difference between a sanitizer, disinfectant and sterilant?**
Antimicrobials are sold for use against microorganisms on environmental surfaces and are regulated by the U.S. EPA. These products can be used in a variety of applications such as sanitizers, disinfectants and sterilants. The difference between these applications is defined by EPA as:
 - **Sanitizer** is a substance that reduces the bacterial population in the environment by significant numbers but does not destroy or eliminate all bacteria.
 - **Disinfectant** is a substance that destroys or irreversibly inactivates bacteria, fungi and viruses, but not necessarily bacterial spores.

- **Sterilant** is a substance that destroys or eliminates all forms of microbial life in the inanimate environment, including all forms of vegetative bacteria, bacterial spores, fungi, fungal spores and viruses.

General/Claim-Related

- **Are disinfectants required to be registered?**

All disinfectants, sanitizers, and antimicrobial products that claim to kill, control, reduce or mitigate the growth of any organisms are required to be registered with the US Environmental Protection Agency (EPA). EPA registered antimicrobial products must have efficacy data to support the claims and directions for use on the approved label, and products must meet specific performance standards in order to make public health claims. The EPA conducts a rigorous science-based review of all data in their decision-making process prior to registering the product, and publishes all EPA approved antimicrobial products on their website:

<https://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>.

- **How can a company claim that a specific product can be used effectively during the COVID-19 pandemic?**

During an outbreak of a new virus like the COVID-19 pandemic, no products exist on the market that can make claims to kill the virus. This is due to the simple fact that the new virus was not available to test and it can take up to 1 year or more to get a viral claim approved by a regulatory agency. For this reason, certain countries have enacted 'hierarchy-based' policies. This means that if a company's product has been found to be effective against harder to kill viruses, it is likely to kill a virus like SARS-CoV-2. In the US, products must be pre-approved by US EPA to make Emerging Viral Pathogen claims before Ecolab can recommend them to a customer for use against an emerging viral pathogen such as SARS-CoV-2.

On March 13, 2020, the US EPA made a decision to allow the use of products with claims against viruses similar to SARS-CoV-2, such as Human Coronavirus, in addition to products with Emerging Viral Pathogen claims during the COVID-19 pandemic. US EPA has published an updated its list of approved products, List N, to include these products alongside pre-approved products with Emerging Viral Pathogen claims <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. This new list aligns with CDC guidance on disinfectants.

A further addition to List N on April 2, 2020, means that products now appear on List N that have been previously approved for use during the Ebola outbreak and products that are effective against Norovirus. On April 9, 2020, EPA added sterilant and other sporicidal products to List N.

Please contact your Ecolab Account Executive for the most up to date information on Ecolab products approved for use against SARS-CoV-2 for your Division.

- **Are EPA-registered products with quaternary ammonium compounds appearing on EPA's List N also effective against SARS-CoV-2?**

All products that appear on List N can be recommended for use against the SARS-CoV-2, including many products that have quaternary ammonium compounds as the active ingredient. All products on List N are supported by scientific data and existing label claims that demonstrate effectiveness against a harder to kill virus or against viruses similar to SARS-CoV-2, such as Human Coronavirus. For these existing label claims, EPA has strict requirements for demonstrating product performance against microorganisms and reviews all data in support of the claim. Qualified products on List N (including quats) should be used according to the label instructions.

- Now that there are two products approved with a SARS-CoV-2 claim on their label, will products on List N still be able to be used against SARS-CoV-2 during the COVID-19 pandemic?**

On July 6th, 2020, EPA announced the first two disinfectant products to be registered with claims against SARS-CoV-2. These products were reviewed under EPA's new 'fast track' process for COVID-19. **EPA has confirmed that List N will continue to be the authoritative source for products effective against SARS-CoV-2** and does not plan to sunset the list for the foreseeable future.
- How do we know if a virus is harder or easier to kill?**

Viruses can be separated into classes based on structure, for example in simplest form: enveloped (e.g. SARS-CoV-2) and non-enveloped (e.g. Norovirus). Years of research and testing have shown that enveloped viruses are easier to kill using disinfectants than non-enveloped viruses, and so a hierarchy has been developed.
- What are examples of harder to kill viruses?**

Non-enveloped viruses are harder to kill with disinfectants and examples include Norovirus, Feline Calicivirus, Poliovirus, Rhinovirus and Reovirus.
- What about a claim against Human Coronavirus? Won't that be enough?**

Up until March 13, 2020, US EPA had guided companies to use only products with Emerging Viral Pathogen claims during the COVID-19 pandemic. Claims against Human Coronavirus did not meet the criteria for hierarchy guidance as there are no data to prove SARS-CoV-2 has the same tolerance to disinfectants as typical Human Coronaviruses which were tested for efficacy. On March 13, 2020, US EPA made a decision to expand the list of suitable products available to the public. This meant allowing the use of products with claims against viruses similar to SARS-CoV-2, such as Human Coronavirus, in addition to products with Emerging Viral Pathogen claims. US EPA's has updated its list of approved products, List N, to include these products <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. This new list aligns with CDC guidance on disinfectants.
- Can sanitizers or disinfectant products be applied to HVAC systems for use during the COVID-19 pandemic?**

Sanitizers and disinfectants applied to HVAC systems are regulated by the EPA and are required to follow a separate protocol and review to obtain claim approval as compared to the typical hard non-porous sanitizer/disinfection spray, soak, dip, and mop applications. Additionally, there are materials compatibility determinations and other third-party certifications (i.e. ASHRAE) that need to be obtained prior to any application to an HVAC system.
- Are there any products that are allowed to make residual sanitizing or residual disinfecting claims?**

There are products that have residual sanitizing claims; check the EPA master label for the details. The words "residual sanitizing" or "residual sanitizer" must appear on the EPA master label in order for the company to be able to talk about this on their product labels and literature. If these words do not appear, any residual sanitizing claims are not allowed to be made. If a company is making these claims, they are violating FIFRA by making false and misleading claims about their products.

There is currently no framework for residual disinfectants under any global regulations that we know of. If a product makes a residual disinfection claim, it is not a legitimate claim. If a company is making these claims they are violating FIFRA by making false and misleading claims about their products.

- Are there any EPA-registered products that can protect my surface from SARS-CoV-2 or other viruses? Do these products kill viruses on surfaces continuously for 90 days?**
EPA has not registered any products that can kill viruses continuously for 90 days or that protect surfaces from SARS-CoV-2 or similar viruses for 90 days. If a company is making these claims, they are violating FIFRA by making false and misleading claims about their products.
- Do surfaces need to stay visibly wet for the entire contact time when using an EPA-registered sanitizer or disinfectant?**
Yes, product label instructions should be followed and applied (and reapplied as needed) so that the surface remains visibly wet for the duration of the contact time specified. Visibly wet surfaces enable the product to continuously work throughout the contact period and are a best practice that state and federal inspectors often use to confirm label instructions are being followed in practice. The EPA has published [specific guidance](#) advising that surfaces remain wet for the contact time to ensure product effectiveness.
- What if a disinfectant product was used on a food contact surface for remediation purposes but that product does not contain food contact-uses on the EPA master label?**
It is required that a registered disinfectant have food contact uses on the EPA master label for it to be used on such surfaces. However, if the situation above occurs and a disinfectant that does not have food-contact uses on the label is used on a food-contact surface, be sure to: 1) follow the application with a potable water rinse, 2) follow the potable water rinse with the use of an EPA-registered food contact sanitizer.
- Are any of the disinfectants recommended for use against SARS-CoV-2 approved for direct use on food, such as produce?**
No, there are currently no products listed on [EPA's List N: Disinfectants for Use Against SARS-CoV-2](#) that can be applied directly to food, such as to treat the surface of produce. The CDC has stated that coronaviruses are generally spread from person to person through respiratory droplets, and currently there is no evidence to support transmission of COVID-19 associated with food¹. The CDC advises people to practice thorough hand washing with soap and water for at least 20 seconds before preparing or eating food.
- How do I know that a company's claims are legitimate?**
Any company marketing hard-surface disinfectant products in the US for use during the COVID-19 outbreak MUST have either an EPA-approved Emerging Pathogen Claim or appear on the EPA's List N <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. Note that the Emerging Viral Pathogen claim cannot be found on a product's commercial label as it is only triggered during an outbreak. It can, however, be found on the master label on EPA's website <https://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>.
- Where on the label can I find the Emerging Viral Pathogen claim?**
The US EPA does not allow companies to put the claim on a commercial or product label but does allow it to be on the master label of the primary registration of the product. Master labels can be obtained from your local Ecolab representative or searched on the EPA's website using the product's name or registration number <https://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>.
- How do I know what concentration or contact time to use for a product on List N?**
EPA has given basic guidance on contact times that can be used for products on List N. These contact times, however, do not take into consideration alternative dilution schemes on the label or other viruses listed. EPA's list N defaults to contact times for viruses listed in a product's Emerging Pathogen Claim (EVP) or the contact time listed for Human Coronavirus (if a product does not have an EVP claim). Some products have both claims, with EVP claims not always being the most conservative. In this case, the user can choose to use the contact time that is less conservative (shorter) when risk is perceived to be low and use a more conservative approach

when SARS-CoV-2 risk or needs are elevated. Please contact your Ecolab representative for product specific questions.

- **Where can I find a list of Ecolab hard surface disinfectant products that I can use against SARS-CoV-2?**

Your Ecolab representative will have the most recent information on products available and suitable for use during the COVID-19 outbreak by division. Ecolab's internal Regulatory policies ensure that only products with necessary approvals/claims will be recommended for customers during this pandemic. Ecolab products have also been included on multiple publicly available lists (Center for Biocides Chemistries, US EPA, state and local agencies).

- **Are Ecolab products on publicly available lists?**

Yes, some Ecolab products have been included on multiple publicly available lists (Center for Biocides Chemistries, US EPA, state and local agencies). Some of these lists are curated and updated periodically. For the most up to date information on Ecolab products it is best to contact your Ecolab representative. Ecolab's internal Regulatory policies ensure that only products with necessary approvals/claims will be recommended for customers during this outbreak.

- **How were these publicly available lists developed?**

The first list was developed in early February by the US-based Center for Biocide Chemistries with input from industry and in collaboration with US EPA, and since then others have been generated by federal (e.g. EPA), state and local agencies. The CBC list is based on the US EPA's criteria for obtaining a claim under its Emerging Viral Pathogen Guidance for Antimicrobial Pesticides¹:

1. The product is an EPA-registered, hospital/healthcare or broad-spectrum disinfectant with directions for use on hard, porous or non-porous surfaces; and
2. The currently accepted product master label (from an EPA registered product as described above) has a disinfectant efficacy claim against a non-enveloped virus.
3. The product master label carries an approved Emerging Viral Pathogen statement.

On March 13, 2020, US EPA expanded their list, List N <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>, to include products that have claims against viruses like Human Coronavirus which are similar to SARS-CoV-2. The CBC has now included these new products to its list, creating two Tiers, T

- **Why are there differences between these lists?**

The CBC list was generated with the intent to provide commercially available product names that would be easily recognizable to the public in the USA. This list is being updated frequently by the companies with intimate knowledge of their product offerings. The US EPA list, initiated in early March, 2020, initially referred to primary registrations only but has since been updated with a searchable list of commercial product names and other user-friendly information.

- **Which list does Ecolab recommend?**

While Ecolab acknowledges the value of these lists and monitors them for accuracy, our internal Regulatory policies ensure that only products with necessary approvals/claims will be recommended for customers during this outbreak. Contact your Ecolab representative for specific product recommendations.

[Application Methods: Fogging/Spraying](#)

- **How do I find a legitimate fogging product or service that can be used against the SARS-CoV-2 virus?**

The easiest way to check that a company or service provider has a legitimate fogging product or service is to check that they are using a product on EPA's list N

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. The product must appear on the list AND have a 'Formulation Type' listed as 'Fog or Mist'. This means that there is a fogging use on the label that has been approved for use during the COVID-19 pandemic. As of 4/10/2020 there has only been one product approved to make such claim. **This is subject to change as EPA updates the list weekly.**

Additional Considerations for vetting product or services can include:

In examining the product's EPA-registered label, look for fogging use directions. If the use directions are only labeled as 'Non-Public Health', 'adjunct treatment' or 'Deodorizing' the product does not have approvals for fogging as a disinfectant. Products with deodorizing fogging claims are relatively common, but no data has been generated or submitted to EPA to prove disinfection of viruses or other pathogens for these products. This means that any proposed application of the product as a fog or mist for disinfection, virus kill, etc. is a violation of the Federal Insecticide, Fungicide, and Rodenticide Act. (The product may have other use directions such as coarse spray that are approved for use against SARS-CoV-2)

Practical and safety considerations for fogging including sealing the area, venting after the service is complete, proper PPE (including NIOSH respirators), and removal of all food and personnel from the space are indicators that a company or service provider has expertise in this type of treatment.

As of April 10th, 2020, no product has been tested and proven kill the outbreak virus itself. If a company is suggesting that their product can kill, destroy, mitigate, or protect against the actual SARS-CoV-2 virus or COVID-19, they are making a false and misleading claim which is a violation of the Federal Insecticide, Fungicide, and Rodenticide Act. **This is subject to change as research continues in the area.**

- **What is the difference between fogging and spraying a disinfectant?**

The EPA uses the method in which the pesticide product is applied as the primary determining factor to delineate between fogging/misting and sprayer applications.

Spray applications include the use of trigger pump sprayers, aerosols, and hand-held manual or mechanical pressure sprayers. The EPA considers spray applications to be a separate method from fogging and misting applications.

Fogging/misting enables coverage of a product over a large area and it includes two primary application scenarios:

1. Use of an automated fogging machine that is placed in an enclosed space and controlled remotely with no human present in the space being treated;
2. Use of a hand-held fogger that is operated by an applicator who is wearing proper PPE and they apply the product in a space where no other humans are present.

Fogging can be done for both non-public and public health applications, but label claims must be supported by generating efficacy data using a fogging-specific test protocol on the end-use chemistry.

- **Can I use a fogger to apply disinfectant? What disinfectants can I fog?**

A disinfectant product can be used for fogging applications only if it contains use directions for fogging application on the EPA master label. Disinfectant products must be used according to the directions for use on the product label, and it is a violation of Federal Law to use them for off-label applications or uses. It is standard practice that disinfectants with fogging directions on the label be applied according to scenario 1 described above, where an automatic fogger is

placed in an enclosed space with no human present in the room, and the machine is operated remotely.

Always refer to the product label and use the required personal protective equipment (PPE) and use concentration for the application.

Note that some products contain fogging use directions for non-public health organisms such as spoilage and odor-causing bacteria, but do not claim efficacy against public health bacteria or viruses including SARS-CoV-2 (This is subject to change). Always read the label instructions carefully to ensure the disinfectant has the correct label claims for the organisms of concern in your facility.

- **Is personal protective equipment required when using a fogger?**
The required personal protective equipment (PPE) for any antimicrobial product is determined by both the health hazards of a product as well as the application method, and users should always refer to the product label to determine the proper PPE for each product and application. Some fogging use instructions require a stationary automatic fogger be set up in an enclosed space and the room to remain vacant for a set time period during and after fogging. In this scenario, anyone entering the room to wear a self-contained respirator approved by NIOSH/MSHA, goggles, long sleeves, and long pants. Always follow label instructions and refer to the fogging apparatus manufacturer directions for additional information.
- **Can I use a hand-held fogger or stationary fogger?**
The user should follow the directions for use on the product label and use the fogging apparatus that is recommended in the label instructions. If no specific fogging apparatus is recommended or required, the user can use either a hand-held fogger or a stationary fogger as long as the proper PPE is worn to protect the user. However, the PPE on antimicrobial or disinfectant product labels may not be adequately protective for hand-held fogging applications because hand-held fogging is not standard practice according to the EPA for most antimicrobial products.
- **Can I fog disinfectants to kill SARS-CoV-2?**
There are two requirements to fog disinfectants for use during the COVID-19 pandemic. First, the disinfectant product must carry the EPA approved Emerging Viral Pathogen claim or be listed on EPA's List N which indicates the product can be used against SARS-CoV-2. Second, the label must have approved fogging use directions for surface disinfection against public health organisms. If the disinfectant meets both of these criteria, then the product can be used with the appropriate fogging apparatus and PPE during the COVID-19 pandemic.
- **Are there different regional requirements for using fogging applications?**
The guidance provided in this FAQ is specific to the US EPA requirements for fogging of disinfectants and sanitizers. While there may be some similarities across regions, it is important to note that each region and more specifically each country may have their own regulations and requirements for fogging applications. Contact your regional Ecolab representative for further information.
- **What surfaces can be disinfected?**
Antimicrobial products are intended to be used on inanimate environmental surfaces. This can include (but is not limited to) floors, walls, benches, countertops etc. The product label will provide guidance on what types of surfaces that specific product is intended to be used on. Always read the product label directions for specific information on surfaces the product can be used on and which surface materials the product may not be compatible with.

Make Your Own Wipes (MYOW)

- **What disinfectant products are eligible for use with MYOW's?**
The EPA registered chemistry must be supported by the appropriate test methods, label language, and active ingredient testing to verify stability and recommend post-saturation shelf life.
- **What type of wipe applications can be used with EPA-registered products?**
There are several types of wipes that can be used with EPA-registered products including microfiber cloth & bucket, Make Your Own Wipes (MYOW's), and pre-saturated wipes. Each type of wipe application has their own set of requirements and advantages.

Microfiber Cloth & Bucket:

- In **Disinfecting and Healthcare/Hospital** settings, microfiber cloths are used for one cleaning task only to reduce transmission of microorganisms from surface to surface and are therefore not re-immersed into the bucket containing EPA-registered chemistry. Many microfiber cloths can be laundered and reused.
- In **Sanitizing and Foodservice** settings, reusable towels/cloths can be used for wiping then re-immersed in the bucket containing EPA-registered chemistry. Single use towels can be immersed in the bucket containing EPA-registered chemistry then used for wiping and disposed. Many reusable towels/cloths can be laundered and reused.
- In **Sanitizing and Food Processing** settings, single use towels can be immersed in the bucket containing EPA-registered chemistry then used for wiping and disposed. Reusable towels/cloths are not recommended for use in food manufacturing settings due to foreign material concerns.

Make Your Own Wipes (MYOW's): A MYOW system uses an EPA-registered concentrate or an RTU to saturate a dry wipes canister system by the end user. The MYOW system is optimized so that there is no excess solution in the canister. Disposable wipes are used for one application (i.e. one table or hard surface) and then disposed of, reducing the risk of soil buildup in the canister. MYOW systems are designed to continually re-use the canister.

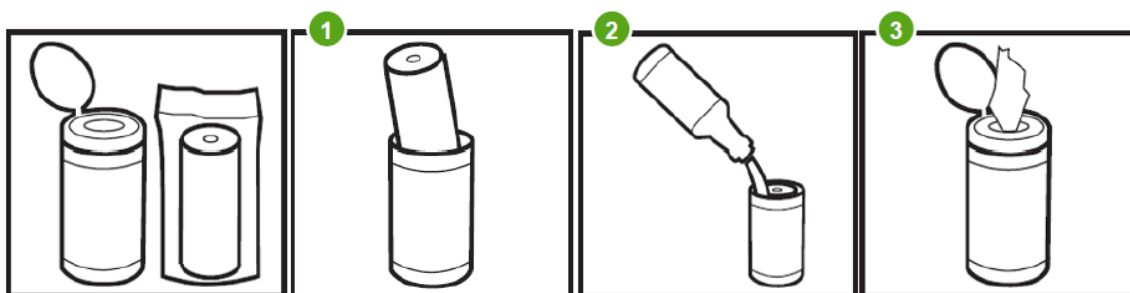
Pre-saturated Wipes: Pre-saturated disposable wipes are registered with the EPA and sold ready-to-use by the manufacturer. Disposable wipes are used for one application (i.e. one table or hard surface) and then disposed of, reducing the risk of soil buildup in the canister.

- **What are the recommended directions for a MYOW system?**
The following steps are recommended to prepare the MYOW system with the EPA-registered chemistry:

Step 1: Place roll of disposable wipes in the canister.

Step 2: Pour recommended amount of use dilution of [insert chemistry] over wipes in a circular pattern. Allow wipes to soak for 5 minutes before use.

Step 3: Pull wipe through lid. Place lid on canister and pull first wipe through. (Wipes should be damp but not dripping).

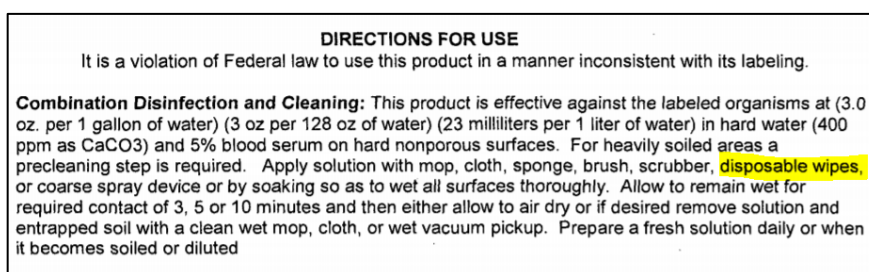


- **What are the efficacy data requirements for using EPA-registered disinfectants with MYOW's?**

The EPA-registered disinfectant must have Use Dilution Method (UDM) efficacy data to support a soak/flood type application on its label to be used with a MYOW system. However, EPA-registered disinfectants with Germicidal Spray Test (GST) efficacy data only require the product to be sprayed first, so these label instructions do not align to the way chemistry is applied with a MYOW.

- **What language is required on the master label for EPA-registered disinfectants to use with MYOW's?**

The master label for the EPA-registered disinfectant must state “wipes” or “disposable wipe” in the use instructions. During the current COVID-19 pandemic period, “cloths” are also considered acceptable for using with MYOW's. Below is an example from OxyCide Daily Disinfectant Cleaner (EPA #1677-237):



- **What are the stability data requirements for using EPA-registered disinfectants with MYOW's?**

Stability data is submitted to EPA for the registered chemistry, but not for the wipe in a MYOW system. Because of this, stability of the MYOW system saturated with the product at use dilution must be internally documented to inform customers of the recommended post-saturation shelf life.

After saturating the wipes with chemistry, the wipes must be expressed (squeezed) and tested for active ingredient using the appropriate Quality Assurance Test Method (QATM) from the Bill of Quality (BOQ). Chemistry must within range of the Confidential Statement of Formula (CSF). For example, OxyCide Daily Disinfectant Cleaner maintains appropriate peracid levels for 24 hours, thus a MYOW system saturated with OxyCide must be discarded after 24 hours.

Pesticidal Devices

- **Can ozone generators, UV lights or air purifiers be used to kill SARS-CoV-2?**

These are examples of pesticidal devices. A pesticidal device is an instrument or other machine that is used to destroy, repel, trap or mitigate any pests, including bacteria and viruses.

Unlike chemical pesticides, US EPA does not routinely review the safety or efficacy of pesticidal devices, and therefore cannot confirm whether, or under what circumstances, such products might be effective against the spread of COVID-19. Accordingly, List N only includes surface disinfectants registered by EPA and does not include devices. Some devices have limitations in how they are used and often can only be used as an adjunct to routine disinfection or cleaning and sanitation practices. Others are used with EPA-registered products and have legitimate claims and use directions associated with them.

Note: Pesticidal devices, while not required to be registered with EPA, are subject to certain regulatory requirements under FIFRA, including labeling and reporting requirements.

Importantly, FIFRA prohibits the sale or distribution of misbranded pesticidal devices, i.e., pesticidal devices with false or misleading claims on their labeling. Selling pesticide devices with false or misleading claims about its safety or efficacy may subject the seller to penalties under FIFRA.

[Disinfection Tunnels and Disinfection Booths](#)

- **Can Ecolab products be used in Disinfection Tunnels or Disinfection Booths?**

No, Ecolab does not sell products that are approved for use in 'disinfection tunnels' or 'disinfection booths' and is unaware of any disinfectant products that are approved for this use. There may be serious unintended health consequences from exposure of people to disinfectants in this way. Below is commentary from the World Health Organization that is good advice.

Can spraying alcohol or chlorine all over your body kill the new coronavirus?

No. Spraying alcohol or chlorine all over your body will not kill viruses that have already entered your body. Spraying such substances can be harmful to clothes or mucous membranes (i.e. eyes, mouth). Be aware that both alcohol and chlorine can be useful to disinfect surfaces, but they need to be used under appropriate recommendations.

The infographic features a blue background with white and yellow text. On the right side, there is an illustration of three disinfectant bottles: a yellow one, a white one with a blue cap, and another yellow one. The text on the left provides a clear answer to the question, stating that spraying these substances on the body is not effective and can be harmful. The WHO logo and the hashtag #2019nCoV are located at the bottom left and right of the graphic, respectively.

No. Spraying alcohol or chlorine all over your body will not kill viruses that have already entered your body. Spraying such substances can be harmful to clothes or mucous membranes (i.e., eyes, mouth). Be aware that both alcohol and chlorine can be useful to disinfect surfaces, but they need to be used under appropriate recommendations.

Can spraying alcohol or chlorine all over your body kill the new coronavirus?



 World Health Organization

#2019nCoV