Setting the Record Straight on Cleaning, Sanitizing and Disinfecting in the COVID-19 Era and Beyond

Produce Safety Educator’s Call #46
Dr. Ruth Petran, Ecolab
April 27, 2020
Instructions

• All participants are muted.
• There will be time for questions and answers throughout the meeting.
  – We may not get around to all comments/questions, BUT you may leave additional comments in the Q&A to be compiled after the session.
• This session will be recorded and notes will be shared via the listserv and on our website after the call.
Introductions

Dr. Ruth Petran
Senior Corporate Scientist, Food Safety & Public Health, Ecolab
PUBLIC HEALTH MATTERS

Setting the Record Straight on Cleaning, Sanitizing, and Disinfecting in the COVID-19 Era and Beyond

RUTH L. PETRAN, PHD, CFS

27 APRIL 2020
ECOLAB’S FOCUS

- **Provide Expertise** about the COVID-19 outbreak and public health
- **Guidance** on how to keep employees and customers safe
- **Practical industry insights** to help combat coronavirus for:
  - Restaurants, food manufacturing, long term care, hospitality and public facilities
TOPICS

- An overall risk management approach
- Which products are needed?
- How are they used?
BREAK THE CHAIN OF INFECTION
IN FOOD AND BEVERAGE MANUFACTURING FACILITIES

1. A MICROORGANISM
   - Keep virus from coming into the plant through exclusion of symptomatic/ill staff, work from home policies for those who are able and employee screening of symptomatic or potentially exposed personnel.

2. A RESERVOIR
   - Thoroughly clean & disinfect high-touch points
   - Wear masks and launder masks regularly

3. PATH FROM RESERVOIR
   - Thoroughly clean & disinfect high-touch points
   - Increase cleaning & sanitation measures in production areas

4. MODE OF TRANSMISSION
   - Utilize social distancing techniques
   - Wear PPE to protect employees
   - Disinfect all hard surfaces
   - Wash hands frequently
   - Do not touch nose, mouth, eyes, face
   - Utilize social distancing techniques

5. PATH OF ENTRY
   - Utilize social distancing techniques where possible such as staggered breaks, reduction of on-line employees.

6. SUSCEPTIBLE HOSTS
   - Thoroughly clean & disinfect high-touch points
   - Wear PPE to protect employees
   - Disinfect all hard surfaces
   - Wash hands frequently
   - Do not touch nose, mouth, eyes, face
   - Utilize social distancing techniques
BASIC PROTECTIVE STEPS

Reality - public health recommendations focus on standard infection control practices, training and compliance.

Good News
Coronavirus is a small-enveloped virus. Enveloped viruses are the least resistant to disinfection, which means disinfectants can be used to effectively kill coronavirus on surfaces.
HOW TO PROTECT YOURSELF AND OTHERS

If you have cold-like symptoms, you can **help protect others** by doing the following:

| Wear a mask if advised by healthcare experts. |
| Wash your hands. |
| Stay home while sick. |
| Cover your mouth and nose. |
| Avoid close contact. |
| Contact a doctor immediately, if symptoms arise. |
| Clean and disinfect. |
HAND HYGIENE

Practice and promote proper hand hygiene.

1. **WET**
   - Hands with clean running water turn off the tap and apply soap.

2. **LATHER**
   - The back of hands, between fingers and under nails.

3. **SCRUB**
   - For at least 20 seconds.

4. **RINSE**
   - Hands well under clean running water.

5. **DRY**
   - Hands using a clean towel or air dryer.

If soap and water are not available, use an alcohol-based hand sanitizer.
WHAT KINDS OF PRODUCTS ARE THERE?

- **Cleaner** is a substance that removes soil. Surfaces must be cleaned first so that the sanitizer or disinfectant that follows is able to contact the contaminating microorganisms.

- **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.

- **Regulatory requirements**
  - Food facilities are required to use an [US EPA-registered](https://www.epa.gov/) “sanitizer” products in their cleaning and sanitizing practices.
SANITIZER VS DISINFECTANT

Sanitizers and Disinfectants are regulated by the US Environmental Protection Agency (EPA) and are used to manage relevant public health risks

What is a sanitizer?
A substance that reduces the bacterial population in the environment by significant numbers, but does not destroy or eliminate all bacteria

What is a disinfectant?
A substance that destroys or irreversibly inactivates bacteria, fungi and viruses

Source: https://www.epa.gov/pesticide-registration/what-are-antimicrobial-pesticides
HIERARCHY OF RELATIVE ANTIMICROBIAL ACTIVITY

Harder to Kill

Sterilant: Peroxyacids, glutaraldehyde, formaldehyde, chlorine dioxide, ethylene oxide

Hospital Disinfectant with Tuberculocidal claims

General Disinfectant

Sanitizer

Easy to Kill

Bacterial Spores
Mycobacterium
Non-enveloped Viruses

Mycobacterium
Non-enveloped Viruses
Fungi

Vegetative Bacteria
Enveloped Viruses
CHOOSING THE RIGHT PRODUCT DEPENDS ON RISK
HOW DOES CORONAVIRUS SPREAD?

It depends on the particular coronavirus. Human coronaviruses *may spread by respiratory droplets from an infected person to others through:*

- **The air** by coughing and sneezing
- **Close personal contact**, such as touching or shaking hands
- **Touching** an object or surface with the virus on it, then touching your mouth, nose or eyes before washing your hands

Transmission from person to person is occurring with COVID-19. Surveillance continues.

WHAT ABOUT SURVIVAL ON SURFACES?

<table>
<thead>
<tr>
<th>Surface</th>
<th>Virus Recovered for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel, Plastic</td>
<td>2-3 days</td>
</tr>
<tr>
<td>Cardboard</td>
<td>24 hours</td>
</tr>
<tr>
<td>Printing &amp; tissue paper</td>
<td>3 hours</td>
</tr>
<tr>
<td>Wood</td>
<td>2 days</td>
</tr>
</tbody>
</table>

- Studies did not evaluate whether the virus was infectious and had to use aggressive techniques to remove it.
- Be cautious in interpretation.

What does this mean?
- Surfaces had remnants of the genetic material of the virus, but don’t know if infectious virus particles are there
- Also don’t know if the virus particles were “available” for transmission to others.

Public Health authorities do not believe that transmission via surfaces is a significant way of spread of COVID-19.

Appropriately directed surface cleaning and disinfection can reduce risks.

“No evidence that the respiratory virus can be transmitted by food or packaging on food…”
Frank Yiannis, US FDA Deputy Commissioner, April 2020

## RISK BY SURFACE TYPE

<table>
<thead>
<tr>
<th>SURFACE TYPE</th>
<th>EXAMPLES of SURFACE TYPE</th>
<th>RISK LEVEL</th>
<th>CDC RECOMMENDATION</th>
<th>ADDITIONAL STEPS, IF DICTATED BY RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Food-Contact</td>
<td>Door handles, push plates, cash register, railings, chairs and booths, trash can, menus, restrooms, desks, high-touch point objects in public spaces</td>
<td>High</td>
<td>Disinfect</td>
<td></td>
</tr>
<tr>
<td>Hard, Non-Porous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food-Contact</td>
<td>tables, ice machine, food prep tools and equipment, ware</td>
<td>Low</td>
<td>Clean&gt; Rinse&gt;Sanitize&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Disinfect &gt; Rinse &gt; Sanitize</td>
</tr>
<tr>
<td>Soft, Porous</td>
<td>Couches, cushions, mattresses, carpets</td>
<td>Low</td>
<td>Clean</td>
<td>Launder or Sanitize (if possible)</td>
</tr>
<tr>
<td>Linen (non-Healthcare)</td>
<td>Towels, sheets, pillowcases, rags, uniforms</td>
<td>Low</td>
<td>Hygienically Clean</td>
<td>Sanitize</td>
</tr>
</tbody>
</table>

WHICH PRODUCTS CAN BE USED?

Find the EPA Registration Number on the product label

EPA Reg. No. 6836-349-1677

Base Registrant Company Number  Product Number  Sub-Registrant Company Number

Not all products have a three-part EPA Registration Number.

To verify your product is on the list of EPA registered antimicrobial products for use against novel coronavirus, match the first two parts of the EPA Registration Number.

Note: Searching by product or company name will not yield full approved list.

List A: Disinfectants for Use Against SARS-CoV-2

If the product you are interested in meets EPA standards for use against SARS-CoV-2, you can find its registration number on the product label. To verify that a product is on the list of EPA registered antimicrobial products for use against novel coronavirus, the cause of COVID-19, match the first two parts of the EPA Registration Number.

EPA list of registered antimicrobial products for use against novel coronavirus, the cause of COVID-19.
CAN ALL PRODUCTS APPROVED BY EPA FOR USE AGAINST COVID-19 BE APPLIED TO FOOD CONTACT SURFACES IN MY BUSINESS?

- If a product is suitable for use against COVID-19 it is unlikely to be suitable for food contact surfaces without an additional step to make the surface safe for food.

- The products on the market today for use against COVID-19 are generally disinfectants (or products used at high concentrations). If applied to an area where food will be prepared or eaten a water rinse and an extra sanitizing step will be needed to make sure the surface can be used safely later.

- Disinfectants can leave a residue of chemical that could be harmful to humans if transferred to food and eaten. Food contact sanitizers are made with approved ingredients, at levels that are safe for food contact surfaces. Unfortunately, many sanitizers do not have virus kill claims and so a multi-step process may be needed to ensure you can disinfect surfaces and keep customers safe from chemical residues.

- Always ask your chemical supplier what disinfectants/sanitizers they are using in your facility. Ask to see to see the label and specific approvals that relate to your business.

HOW AND WHEN TO USE THE PRODUCTS
# PROCEDURES BASED ON RISK PROFILE

Based on the risk profile of their operations, this 3-tiered guidance is informed by public health reports and our understanding of the scientific characteristics of underlying causes.

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>GREEN: Standard Prevention</th>
<th>YELLOW: Risk Reduction</th>
<th>RED: Remediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>RISK PROFILE: No known outbreak in your geographic area</td>
<td>RISK PROFILE: The potential exists for an outbreak in your geographic area</td>
<td>RISK PROFILE: A publicly declared outbreak in your facility or region is disrupting normal business</td>
</tr>
<tr>
<td>ACTIONS</td>
<td>Follow current procedures</td>
<td>Educate employees on infection control, PPE use and communicate Infection Control Procedures</td>
<td>Enhance procedures to respond to an outbreak in your facility, designed to break the chain of infection or illness</td>
</tr>
<tr>
<td></td>
<td>Regularly revisit training to ensure compliance</td>
<td>Assess your preparedness status and collaborate with vendor partners on response readiness</td>
<td>Facilitate training for heightened procedures</td>
</tr>
<tr>
<td></td>
<td>Maintain standard hygiene and sanitizing/disinfection practices</td>
<td>Evaluate facility usage, lead times and stock shelf life and their impact on ordering supplies</td>
<td>Perform heightened procedures using approved products</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Plan for deep cleaning and reopening procedures after down time or quarantine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increase frequency of standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increase frequency of cleaning and disinfection of high-touch surfaces</td>
</tr>
</tbody>
</table>
CONTACT/DWELL TIME

What is this?

- Contact time or dwell time is the time it takes for a product to ‘work’ or to kill the target virus. The contact times on the label are associated with the viruses that have been tested in the lab. If the label says 3 min for Human Coronavirus, then it takes the product 3 mins to kill that virus. The product should not dry out before that time as it won’t have enough time to work. The best way to ensure contact time is to thoroughly wet the surface or to reapply product if necessary.

My chemical supplier tells me that his product only needs 60 seconds to work, but other products take 10 mins? Can his really work in 60 seconds?

- Some products do indeed have short contact or dwell times and some take up to 10 mins to be effective. If you are unsure about what your chemical provider is telling you, ask to see the label. The contact time, concentration and target virus are all interrelated.

- Check that the contact time lines up with the right concentration and is associated with the virus you want to kill. Remember that a label can have multiple claims, sanitizer (not suitable for viruses), disinfectant, etc. Always ask to see proof of the claims a chemical supplier is making.
DISINFECT: NON-FOOD CONTACT

Clean and disinfect hard surfaces and high-touch objects with approved disinfectants. Increase frequency as needed.

1. **PRE-CLEAN**
   Pre-clean visibly soiled areas to be disinfected

2. **DISINFECT**
   For an emerging viral pathogen, use a disinfectant with an EPA-approved emerging viral pathogen or coronavirus claim. Refer to the product label for complete directions for use.

3. **WAIT**
   Allow surface to remain wet for the time indicated in the directions for use on the product label.

4. **DRY**
   Wipe the surface or allow to air dry.
**DISINFECTION: FOOD CONTACT**

During RED REMEDIATION: Clean and disinfect hard surfaces and high-touch objects with approved disinfectants. **Increase frequency as needed.**

1. **PRE-CLEAN**
   - Pre-clean visibly soiled areas to be disinfected.

2. **DISINFECT**
   - For an emerging viral pathogen, use a disinfectant with an EPA-approved emerging viral pathogen or coronavirus claim. Refer to the product label for complete directions for use.

3. **WAIT**
   - Allow surface to remain wet for the time indicated in the directions for use on the product label.

4. **DRY**
   - Wipe the surface or allow to air dry.

5. **RINSE AND SANITIZE**
   - Rinse the surface with potable water and sanitize using food-contact sanitizer according to label directions.

---

**RED: REMEDIATION**
CAN ANY PRODUCTS APPROVED BY EPA FOR USE AGAINST COVID-19 BE USED TO KILL SARS-COV-2 ON SOFT SURFACES?

- The only products that are currently available for use against COVID-19 on soft surfaces are laundry products.
- Soft surface claims on typical spray, mop or wipe products are sanitizing claims and have not been tested against viruses. A chemical supplier cannot legally tell you they can kill SARS-CoV-2 on soft surfaces with these types of products. You can still decide to use the product as a precaution.
- You can always ask your chemical supplier about the data they have to back up their claims. If they are a reputable supplier, they will be able to give you this information.
APPLICATION METHODS ARE LISTED ON THE LABEL

- Trigger Sprayer
- Manual pressurized sprayer
- Microfiber Cloth & Bucket
  - Disinfecting and Healthcare/Hospital settings: microfiber cloths used for one cleaning task only
  - Sanitizing and Foodservice settings: reusable towels/cloths used for wiping then re-immersed in the bucket containing EPA-registered chemistry.
- Make your Own Wipes
  - Use an EPA-registered concentrate or RTU to saturate a dry wipes canister system by the end user
  - Optimize so no excess solution in canister
  - Used for one application and then discarded
  - Product master label must state “wipes” or “disposable wipe” in the use instructions (“cloth” also acceptable during COVID-19 pandemic period)
- Pre-Saturated Wipes
  - Pre-saturated Disposable Wipes are registered with the EPA and sold ready to use by manufacturer
  - Used for one application and then discarded
FOGGING VS SPRAYING

- EPA differentiates by application type and considers fogging and spraying to be different applications.

- Spraying uses:
  - Trigger sprayer
  - Aerosol
  - Hand-held manual pressurized sprayers (i.e. pump-up sprayers)
  - Mechanical pressure sprayers
  - Electrostatic sprayers

- Fogging includes two primary applications:
  - Automated fogging machine placed in enclosed space, controlled remotely
  - Handheld fogger operated by applicator wearing proper PPE, applied in a space where no other humans are present

- Fogging can only be done with EPA-approved disinfectants for fogging:
  - Instructions included on EPA label; if fogging is not there, it cannot be used in a fogging machine.
UV CONSIDERATIONS

Would UV be effective against COVID-19?
- Research still emerging but answer is likely “yes” depending upon:
  - UV emission source, exposure, duration
  - Positioning of the device to expose contaminated surfaces - typically requires repositioning unit within a room
  - 3rd party research has shown efficacy against other viruses - can’t confirm efficacy of UV against spread of COVID-19

UV is part of a program, not a stand-alone technology
- Does not penetrate or remove soils or gross contamination
- UV causes yellowing of certain plastics and bleaching/degradation of fabrics, depending on UV source and intensity
- Again, shadowing is a concern as UV only works where the light shines
- Note: room cannot be occupied while UV is operating

UV is generated from a pesticidal device
- Regulated differently than chemical disinfectants
- EPA relies upon device manufacturers to have scientific data to support claims
- Some states require device registration

_UV is a legitimate technology, that operates within limitations, as part of a program, with unknown efficacy to reduce the transmission of COVID-19_
HAND SANITIZERS ARE DIFFERENT

- Hand Sanitizers are regulated by the US FDA
  - They are not tested for effectiveness against bacteria and viruses on hard surfaces
- Hard Surface Sanitizers and Disinfectants should not be used on people
  - They have not been assessed by the FDA for use in this manner; health and safety concerns
  - CDC and WHO have not endorsed these actions
  - It is unlawful to use EPA registered products for purposes not included in the approved labeling
SANITIZERS: HARD SURFACES V. HANDS

- Hard surface sanitizers are approved for use on hard surfaces
- Typically regulated by separate regulatory agency (e.g., USA Environmental Protection Agency, EPA)
- Criteria and label claims based on efficacy of inactivating target microorganisms on hard surfaces
- Check for applicability for gloves

- Hand sanitizers directly contact skin
- Typically regulated by separate regulatory agency (e.g., USA Food & Drug Administration, FDA)
- Criteria for approval based on safety for application to human skin

CANNOT BE USED INTERCHANGEABLY! MUST FOLLOW LABEL INSTRUCTIONS!
KEY POINTS

- Consider the relevant risks
- Sanitizers and disinfectants can help manage risks
  - Choose the right product
  - Use it properly
Next Meeting

• **Tentative**: May 18, 2020
  – Focus on remote training tips, online course

• Meeting info to be sent out via the listserv closer to the time of the call

• Submit other topics for discussion to Gretchen (glw53@cornell.edu)
Cornell Produce Industry Virtual Office Hours

• Wednesday, April 29, 2020 | 12:30 pm to 1:30 pm (ET)
• Joined by colleagues from United Fresh, University of Delaware, Rutgers University, and the University of Florida, this session will be led by Cornell University produce safety professionals including members of the Produce Safety Alliance, Cornell Cooperative Extension, and the Department of Food Science.
• Produce Industry Virtual Office Hours are free and open to anyone in the food industry from farm to fork. Registration for this event is required. Please register here.
The PSA Website

http://producesafetyalliance.cornell.edu/
En español: es.producesafetyalliance.cornell.edu