Utilizing FAC118

Safer Cleaning Products, Equipment, and Services

To Develop a Green Housekeeping Program
and
Address Health and Safety Issues

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Informed Green Solutions, Inc.

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UMass Lowell

Early in the pandemic, we faced many challenges when trying to keep people safe from the virus!

Everything changed to some degree, some of it based on misinformation and fear:

- **Staff in all departments became involved in infection control.**
- **Disinfectant products, methods, frequencies and locations changed.**
- **Supply chain issues caused panic buying.**
- **New and existing vendors peddled new technologies and products without technical expertise resulting in regulatory and health and safety issues.**

Emerging from Pandemic Challenges: Regulatory Changes, Market Shifts, Procurement and Vendor Issues

There were also opportunities!

- **Emergence of new types of products, equipment, and technologies.**
- **An awareness of the relationship between indoor air quality and health.**
- **Federal initiatives to address the virus and related emerging technologies.**
- **People came together locally and nationally to problem solve.**

Emerging from Pandemic Challenges: New Opportunities and Resources!

This webinar covers:

- **The status of some of the federal COVID-19 guidance and initiatives.**
- **Some lessons learned from the early days of the pandemic.**
- **The resources and criteria available on FAC118 to:**
  - **Develop or enhance your Green Housekeeping Program**
  - **Provide updates on trending issues (PFAS)**
  - **Provide hard-to-find substitute products**
  - **Provide health and safety supplies to protect workers from hazards we cannot eliminate**
  - **Address some pandemic legacy issues (disinfectant application equipment)**

GREEN HOUSEKEEPING PROGRAM

Most Important News!

Aerosols ARE the *main transmission route* for SARS-CoV-2

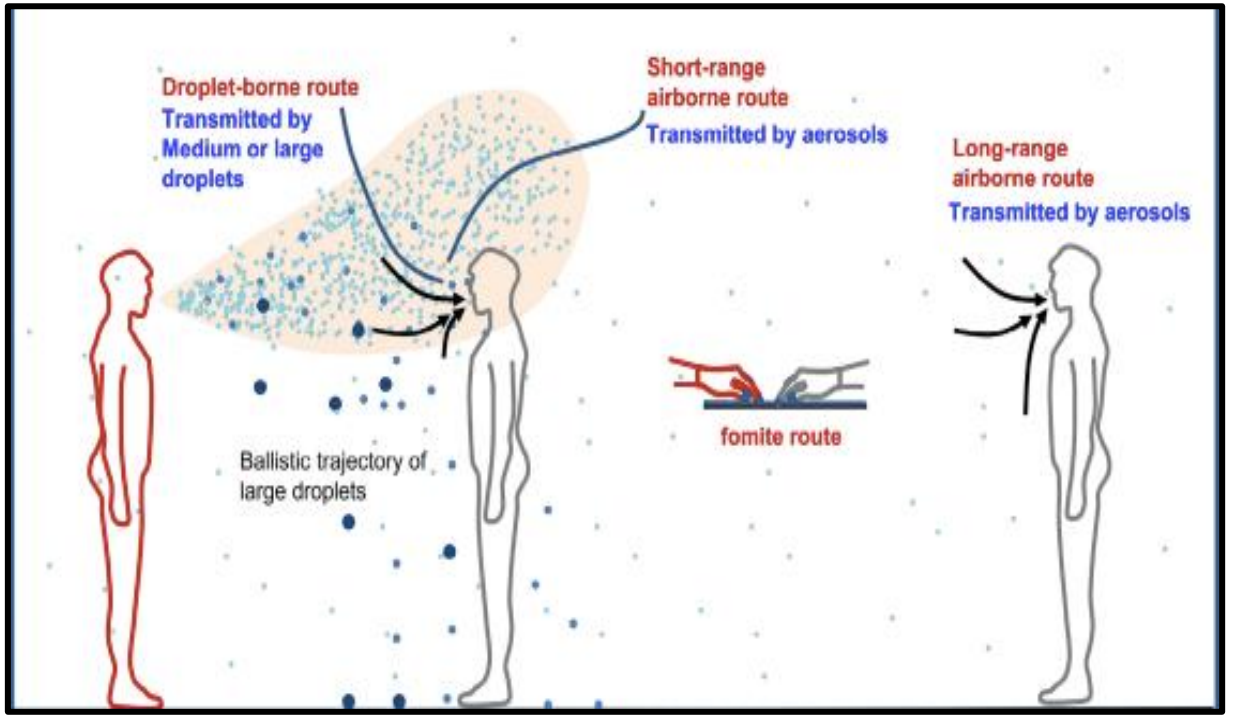


Fig 1: Illustration of different transmission routes of SARS-CoV-2. Adapted from Jianjian Wei PhD and Yuguo Li PhD. (source)
https://www.assaygenie.com/transmission-of-sarscov2-covid19-via-droplets-and-aerosols-

Droplets on surfaces are NOT the main route of transmission

Thus, we have returned to pre-pandemic cleaning practices!

Federal Guidance - When to Clean and When to Disinfect

Summary of CDC Updated Guidance May 2021

To be further determined by your organization:

- **Cleaning once a day is enough to remove virus that may be on surfaces if no one with confirmed or suspected COVID-19 has been in a space.**

  Disinfecting kills any remaining germs on surfaces.

- **Clean more frequently, or clean and disinfect shared spaces if:**
  - **the space is a high traffic area, or**
  - **conditions increase risk from touching surfaces.**

Clean AND disinfect if there has been a sick person or someone who tested positive for COVID-19 in your facility within the last 24 hours.

Changing Regulatory Landscape at the Federal Level

- CDC – infection control work practices
- FDA – emergency use authorizations for:
  - hand sanitizer
  - KN95 masks
- NIOSH – PPE reuse and certifications
- EPA – expedited some of their review processes:
  - emerging disinfectants for SARS-CoV-2 (List N)
  - products evaluations for use in electrostatic and mister/fogger equipment

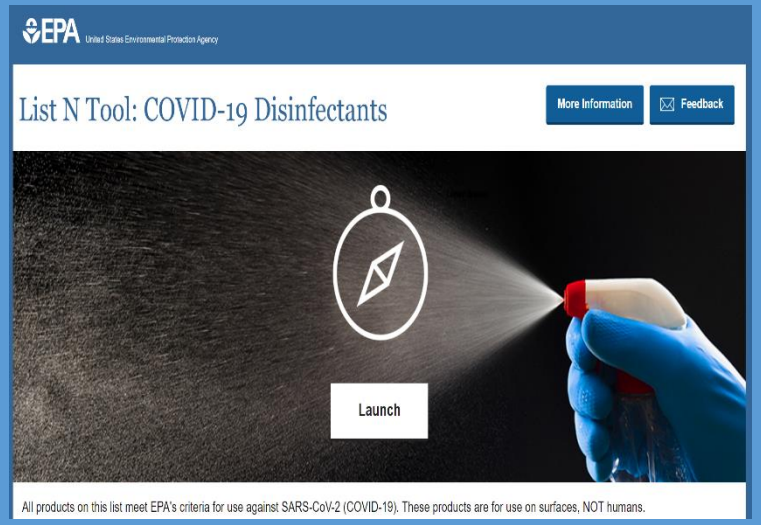
Regulatory Initiatives at the Federal Level

EPA – reviewed emerging products and technologies:

- Disinfectants for porous surfaces
- Residual activity in disinfectants for viruses (used to only be approved for bacteria)
- Coatings with residual activity
- Wrap around effects of electrostatic applications of disinfectant

EPA - created List N for Emerging Pathogens - COVID 19 Disinfectants

EPA List N: Searchable Database



- During the pandemic, EPA also expanded the types of products it reviewed and approved either on List N or in a List N appendix.
- EPA expedited some of their review processes to respond to emerging products and technologies.
- Once CDC changed its position on the way the the virus was transmitted, EPA stopped *expediting* these reviews.

EPA – just created List Q for Emerging Viral Pathogens, including Monkeypox

The EVP guidance divides viruses into three categories:

Tier 1: Enveloped viruses are the easiest to inactivate.

Tier 2: Large, nonenveloped viruses are more difficult to inactivate compared to enveloped viruses.

Tier 3: Small, nonenveloped viruses are the hardest to inactivate.

List of Disinfectants for Emerging Viral Pathogens (EVPs)

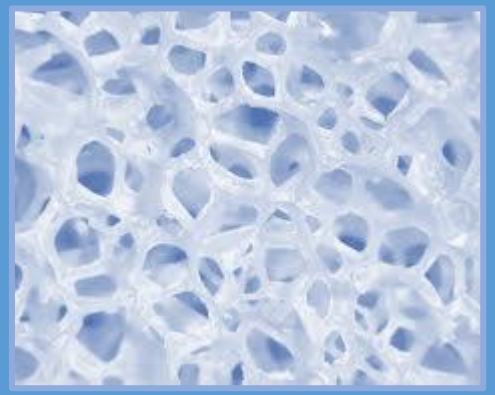
Products on this list have emerging viral pathogen claims. Use the table above to determine whether the pathogen you intend to kill falls into Tier 1, 2, or 3. Then, use the filters

Information about listed products is current as of the date on this list. Inclusion on this list does not constitute an endorsement by EPA.

If you are the registration holder and believe your product qualifies for inclusion on this list, please email disinfectantslist@epa.gov.

EPA Registration Number	12345-12
Active Ingredient(s)	
Product Name	Product A
Company	Company XYZ
Contact Time (in minutes)	
Formulation Type	
Surface Types	
For use on Tier 1 viruses?	
For use on Tier 2 viruses?	
For use on Tier 3 viruses?	
Follow directions for the following pathogens	

EPA Approved Some Disinfectants for Porous Surfaces



EPA now allows some types of disinfectant products to be used on porous surfaces:

- **EPA defines porous surfaces on List N as fabric, cushions, untreated wood, etc.**

Approved types of products on List N:

- **laundry presoak**
- **vaporized hydrogen peroxide (VHP) generators**

EPA - now evaluating disinfectants for residual activity:

Until recently, manufacturers could only make residual claims for antibacterial products. Residual means they can provide an ongoing effect beyond the initial time of application.

If a product was both a disinfectant and a sanitizer, residual claims were made for bacteria.

Recently EPA created a review process for evaluating claims for two types of products:

1. **Disinfectants that could also provide residual efficacy, and**
2. **Supplemental residual antimicrobial products (e.g., coatings, paints, solid surfaces) that do not meet EPA's standards for disinfectants but are intended to be used as a supplement to standard List N disinfectants.**

There is a List N Appendix: Supplemental Residual Antimicrobial Products for COVID-19,
https://www.epa.gov/pesticide-registration/list-n-appendix-supplemental-residual-antimicrobial-products-coronavirus
Only had one product with copper in it!

Link - EPA Review for Products Adding Residual Efficacy Claims

What is there to know about hand sanitizers?

FDA Regulates Hand Sanitizers:

- They are considered “over the counter” drugs. Parents must approve their use in schools.
- FDA does not approve any antiseptic product, including hand sanitizer, to prevent or treat COVID-19.
- FDA advises distributors not to sell Hand Sanitizer Do-Not-Use List , available at: https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-consumers-should-not-use.
  - Some products are included on the list even if they were not recalled, due to the dangers of methanol, benzene or 1-propanol contamination.
  - FDA recommends continuously checking this list for updates.
- FDA says that hand sanitizers that do not have these ingredients are not legally marketed:
  - Alcohol (ethanol or isopropyl), or
  - Benzalkonium chloride (FAC118 prohibits).

What is there to know about hand sanitizers?

- **Expiration Date**
  - **Manufacturers must list an expiration date, unless they have data showing that they are stable for more than 3 years.**
  - **Hand sanitizer produced under FDA's temporary policies were not required to list an expiration date listed as they were expected to be used during the public health emergency.**

- **FAC118 Specifications**
  - **Must contain at least 60% ethanol**
  - **May not contain active ingredients other than ethyl alcohol or isopropyl alcohol**
  - **May not be on the USDA *Do Not Use List***
  - **Must offer at least one brand that contains the following third-party certification - Green Seal, UL ECOLOGO, Cradle to Cradle**

Elements of a Green Housekeeping Program and How to Use FAC118 Resources to Develop or Enhance a GHP

What are key components of a Green Housekeeping Program?
Clean for health, not just appearance!

- **Written program with policy, purchasing criteria, roles and responsibilities, etc.**
- **Use of fewer and safer, less toxic products (e.g., cleaning, antimicrobials, floor care).**
- **Use of equipment to minimize chemical and water use and minimize impacts on indoor air (e.g., microfiber, HEPA vacuum cleaners, battery operated equipment, etc.).**
- **Source reduction (e.g., safe use of concentrates with dilution dispensing equipment).**
- **Sustainable purchasing for consumables (e.g., renewable and recycled content).**

- **Staff education (e.g., product hazards, work practices, use and maintenance of equipment, management hazardous waste, etc.)**

Where to Begin or How to Enhance and Existing Program *Start with FAC118!*

Why?

- **Products are selected by technical experts – safer ingredients, effective technologies, compliance with regs, etc.**
- **There are new active ingredients and product categories on FAC118.**
- **The FAC118 OSD Contractor Manager is available if support is needed.**
- **Vendors on the new contract may offer new products and services not available on the previous contract FAC85 (e.g., on-site generating equipment).**
- **Although FAC118 can be used just to buy products, FAC118 vendors also provide required and optional program support services.**

Where to Begin or How to Enhance and Existing Program *Start with FAC118!*

How?

- **Review the FAC118 vendor's Green Cleaning Program submitted to OSD.**
- **Have the vendor do an assessment of your program (e.g., work practices, equipment, products, types of facilities managed).**
- **Have the vendor recommend how they could help transition or enhance your program:**
  - **Safer and fewer products**
  - **Services (e.g., work loading, inventory systems, inspections, etc.)**
  - **Equipment (e.g., that is more effective, efficient, safer).**
  - **Training and educational aides (e.g., customized materials that incorporate health and safety).**

GREEN HOUSEKEEPING PROGRAM

Explore Vendor's Green Housekeeping Program

Vendors should present all aspects of their program!

Required vendor FAC118 resources and services <u>per year</u>:

- **An initial site assessment**
- **Equipment demonstrations**
  - **Ask if you can borrow and try for free for a time??**
- **A training on transitioning to a green cleaning program**

Explore Vendor's Green Housekeeping Program: Non-Mandatory

Training, technical assistance and guidance materials:

- What forms are available?
- What price?
- What topics and how customized:
  - Use of chemicals, equipment use and maintenance, etc.
  - Other topics (e.g., health and safety, emergency response, chemical management, OSHA training?)
  - Protecting sensitive populations (e.g., pregnant women, children, asthmatics)

Explore Vendor's Green Housekeeping Program: Non-Mandatory

Training, technical assistance and guidance materials:

- What Audiences and Languages?

- What certifications do trainers have?
  - Green Seal GS- 42 - Criteria for Cleaning Service Providers, ISSA CIMMS or LEED?
  - This can help when developing programs for credit for high performance buildings.

Explore Vendor's Green Housekeeping Program: Non-Mandatory

- Schedules and frequency of routine and periodic tasks

- Inspection program
  - Is it electronic?
  - Can it be modified?

- Workload analysis

- Inventory Control System

Developed by Lynn Rose

Explore Vendor's Green Housekeeping Program: Non-Mandatory

- ***Preparation, use and storage of chemicals within the facility - examples:***
  - **proper ventilation during product use**
  - **dilution control procedures**
  - **proper chemical storage - chemical compatibility, signage, labeling, etc.**
- ***Handling potentially hazardous products:***
  - **floor stripping chemicals**
  - **legacy building materials (e.g., lead-based paint, vinyl asbestos floors)**
- ***Addressing biological contaminants:***
  - **mold, mildew**
  - **pest byproducts**
  - **bloodborne pathogens**

Explore End User Concerns

- Are products safe and effective?
- Are products cost effective?
- How will equipment save us money (ROI)?
- Will it save me labor? (e.g., auto scrubbers, backpack vacuums, microfiber mops)

Return on investment

Area Sq.Ft	Mop	Bulldog	Monthly Savings
2,500	1.45 hrs*	0.2 hrs	$281.40
5,000	2.9 hrs*	0.4 hrs	$562.80
7,500	4.35 hrs*	0.6 hrs	$844.20
10,000	5.8 hrs*	0.8 hrs	$1125.60

- Will products work in all seasons (e.g., salt on floors in winter)?
- What happens when they start to smell or change color?
- Are there compliance issues?

Explore how to reduce the number of products needed?

One Product, Multiple Concentrations and Uses

Example – An all-purpose cleaning chemical for everyday use:

- Restroom cleaner
- Carpet spotter/extractor
- Glass and Surface cleaner
- Neutral Floor cleaner
- Stainless steel (replaces a typically hazardous product)

TURI Success Story - Food Service Switch to Green Cleaning:

- Replaced 27 products with 8 in 62 facilities!

Explore how to reduce the number of antimicrobials needed?

Uses	Clean-cide	Contact Time	QT Plus	Contact Time	Re-Juv-Nal	Contact Time	Non-Acid Restroom	Contact Time
COVID-19	yes	5 minute	yes	3 minute	yes	10 minute	yes	10 minute
BBPs	yes	5 minute	yes	10 minute	yes	10 minute	yes	10 minutes
Athlete's foot	yes	5 minute	yes	10 minute	no	N/A	yes	10 minutes
Food Contact Sanitization	Yes, no rinse	1 minute	no	N/A	no	N/A	no	N/A
MRSA	yes	5 minute	yes	10 minute	yes	10 minute	yes	10 minutes
Norovirus	yes	5 minute	yes	10 minute	yes	10 minute	no	N/A

Different uses may require different concentrations and/or contact times.

Some disinfectants can be used as a sanitizer at a lower concentration or shorter contact time.

Don’t overbuy - Remember the items that expire!
Monitor and Replace for Efficacy

BBP Kits – products that expire:

- **Antiseptics/hand sanitizers**
- **Disinfectants**

Hazardous Waste

Hand Sanitizers (are not disinfectants):

- **Manufacturers must list an expiration date, unless they have data showing that they are stable for more than 3 years, except during the pandemic under FDA temporary polices.**

Hazardous Waste

Minimize purchases of antimicrobials due to expiration issues:

Expired concentrates of disinfectants and sanitizers are typically regulated and disposed of as hazardous waste.

Lynn Rose

Summary of Key Points to Discuss for Selecting Antimicrobials and Cleaning Products

- Shelf life of the product and disposal requirements.
- Product's uses, health/safety hazards, and precautions.
- Type of PPE and ventilation required.
- Storage requirements .

Summary of Key Points to Discuss for Selecting Antimicrobials

- What is the product availability and are there any supply chain issues?
- What microbes it is approved for?
- What is the EPA Registration Number?
- Is the active ingredient on the EPA DFE list, or if it is third-party certified?
- Is the type of applicator equipment that the product approved by EPA? (check the pesticide label and List N).
- What are the dilution rates and contact times for specific microbes?

Using FAC118 to Address PFAS, an Emerging Issue

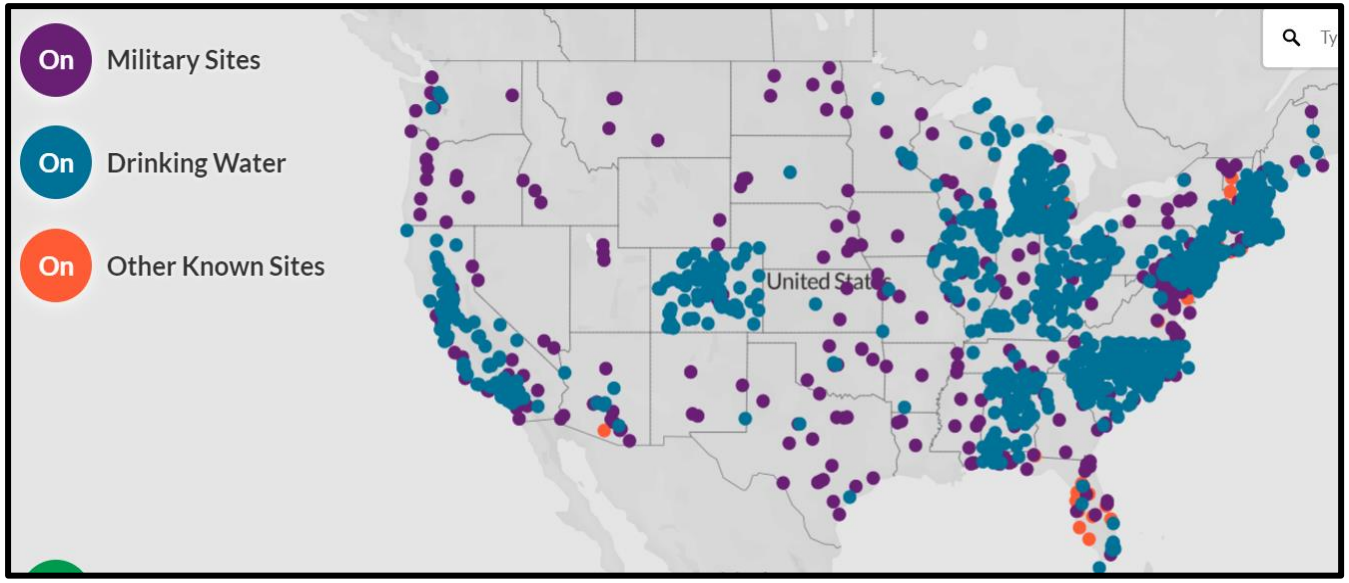
PFAS: What are they and why are they a problem?

PFAS – per- and poly-fluoroalkyl substances

PFAS are a large group of man-made chemicals used worldwide since the 1950s to waterproof, greaseproof, stainproof products, and are also used as surfactants and friction reducers. (NIH)

Some brand names: Teflon, Stainmaster, Scotchgard, SilverStone

They are also found in fire foam, compostable food ware, floor finishes, cleaning products.



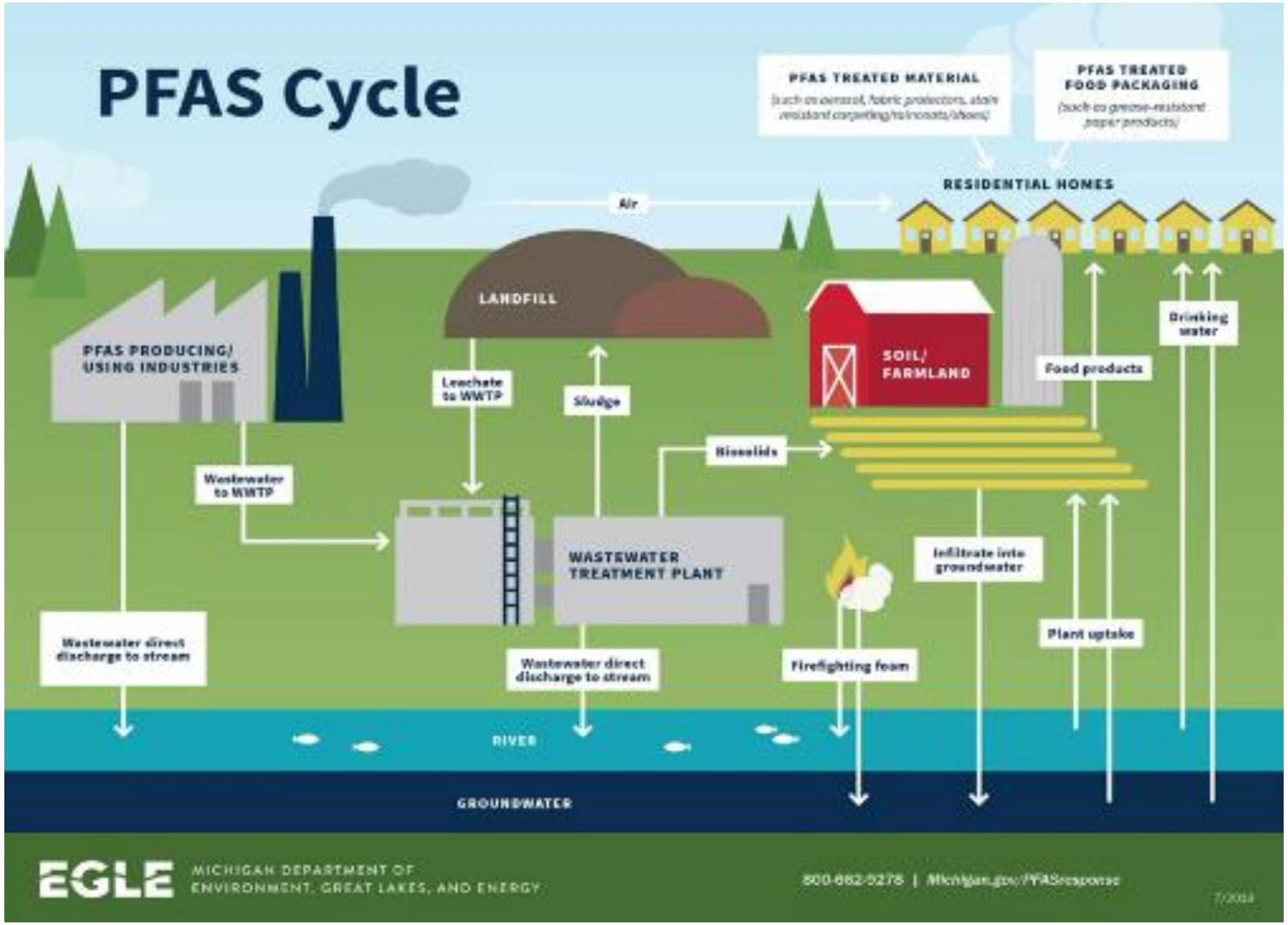
- **Most nonworker exposures occur through drinking contaminated water or eating food that contains PFAS. (ATSDR)**

EWG Interactive Map - https://www.ewg.org/interactive-maps/pfas_contamination/map/

PFAS: Why are they a problem? Continued

PFAS are described as "forever chemicals" because they never fully break down in the environment or our bodies. As a result:

- **They are found in the blood of people and animals all over the world. (ATSDR)**
- **They are present in drinking water, at low levels in a variety of food products, and in the environment.**



PFAS: What is OSD doing about them?

PFAS – per- and poly-fluoroalkyl substances

- It is challenging to ensure products do not use PFAS as they are often used in raw materials in proprietary formulas that may not be not fully disclosed to the manufacturer.
- If known, manufacturers are not required to disclose to consumers that they're using them. (NRDC)
- FAC118 prohibits PFAS in two ways:

1. They have required products meet 3rd party certifications

2. The contract specifications have PFAS criteria that vendors must comply with:

"No products shall contain polyvinyl chloride (PVC) or PFAS substances".

PFAS: Green Seal (GS) Standards
Example of a 3rd Party Certification PFAS expanding initiative

GS is working on new PFAS criteria for some of their standards:

- They are working on expanding from their current list of 7 prohibited types of PFAS to <u>prohibiting all</u> PFAS (approximately 12,000 PFAS) in certified products.
- Through this new initiative, GS will: 1) prohibit any intentionally added PFAS, and 2) Restrict any PFAS to 100 ppm when present as a contaminant.
- The PFAS criteria will be added to the following standards:
  - General Purpose Cleaners (GS-8, GS-37)
  - Laundry Care Products (GS-48, GS-51)
  - Specialty Cleaners (GS-52, GS-53)
  - Personal Care Products (GS-44, GS-50)

Source: https://greenseal.org/prohibiting-polyfluorinated-chemicals-call-for-comment/

PFAS: ECOLOGO/UL Standards

UL 2777 - Hard Floor Care Products

Product shall not:

- Be formulated or manufactured with perfluorooctane sulfonates (PFOS)
- Contain more than 150 ppm of fluorinated surfactants

Product search page:

https://spot.ul.com/main-app/products/catalog/?keywords=UL+2777+-+Hard+Floor+Care+Products

Source: https://greenseal.org/prohibiting-polyfluorinated-chemicals-call-for-comment/

PFAS and Compostable Bags: FAC118 Criteria

Compostable Bags

All compostable organic waste bags must be approved and certified as compostable by one of the following:

Composting Manufacturing Alliance (CMA):
https://compostmanufacturingalliance.com/

Biodegradable Products Institute (BPI):
https://products.bpiworld.org/

European Union DIN **Vincotte**

Examples of other organizations under an equivalent or stronger compostability standard

BIODEGRADABLE PRODUCTS INSTITUTE

BPI also certifies Food Service Ware (Containers, Cutlery, Dishware).

An Environmental, Health and Safety Perspective Using FAC118 for Selection of EPP Products & Equipment.

Product hazards, procurement issues, and selection criteria for:

- **Antimicrobials**
- **On-site generating equipment**
- **Graffiti Remover**
- **Deicers and Snow Melt**
- **Floor Strippers, Slip Resistant Footwear and Emergency Eyewash**
- **Used Syringe Pick Up Tools and BBP Spill Kits**
- **Spill Control Products - Sorbents**
- **Microfiber Selection and Laundering**

FAC 118 has identified Safer Disinfectants Ingredients

Acceptable "Active Ingredients"	
Citric Acid	DFE
Peroxyacetic acid *(Approved for food-contact surface sanitizers and laundry products ONLY)*	
L-Lactic acid	
Hydrogen peroxide (including Accelerated Hydrogen Peroxide)	
Isopropanol	
Ethanol	
Sodium Chloride	TURI
Thyme oil (Thymol)	
Glycolic Acid	
Caprylic acid	FAC 188 Team
Hypochlorous Acid (ready-to-use formulations only)	
Dichloroisocyanurate (NaDCC, only food grade) with CAS #2893-78-9	
On-Site Generation – must maintain ph of 4 – 6.5	TURA Task Force

Disinfectant: Hypochlorous Acid and NaDCC

Two Acceptable Forms on FAC118

1. Hypochlorous Acid - Must be in ready-to-use formulations only.

2. Dichloroisocyanurate (NaDCC) (CAS #2893-78-9) – tab form:

   - Must be only food grade and rinsed on food contact surfaces.
   - Must be used in the correct concentration and maintain a pH of 4 to 6.5.
   - Must be used in equipment approved by EPA (e.g., spray bottle or electrostatic sprayers).
   - Must <u>not</u> be used in foggers/misters, unless approved by EPA.

Be careful when switching Tab (NaDCC) products: Not a one for one switch!

An example of how the same product can have different formulas, product names, come in different concentrations, require different dilution rates, and have different contact times for the same use.
*** Note, you can achieve a shorter contact time with a higher concentration, but it is more expensive.**

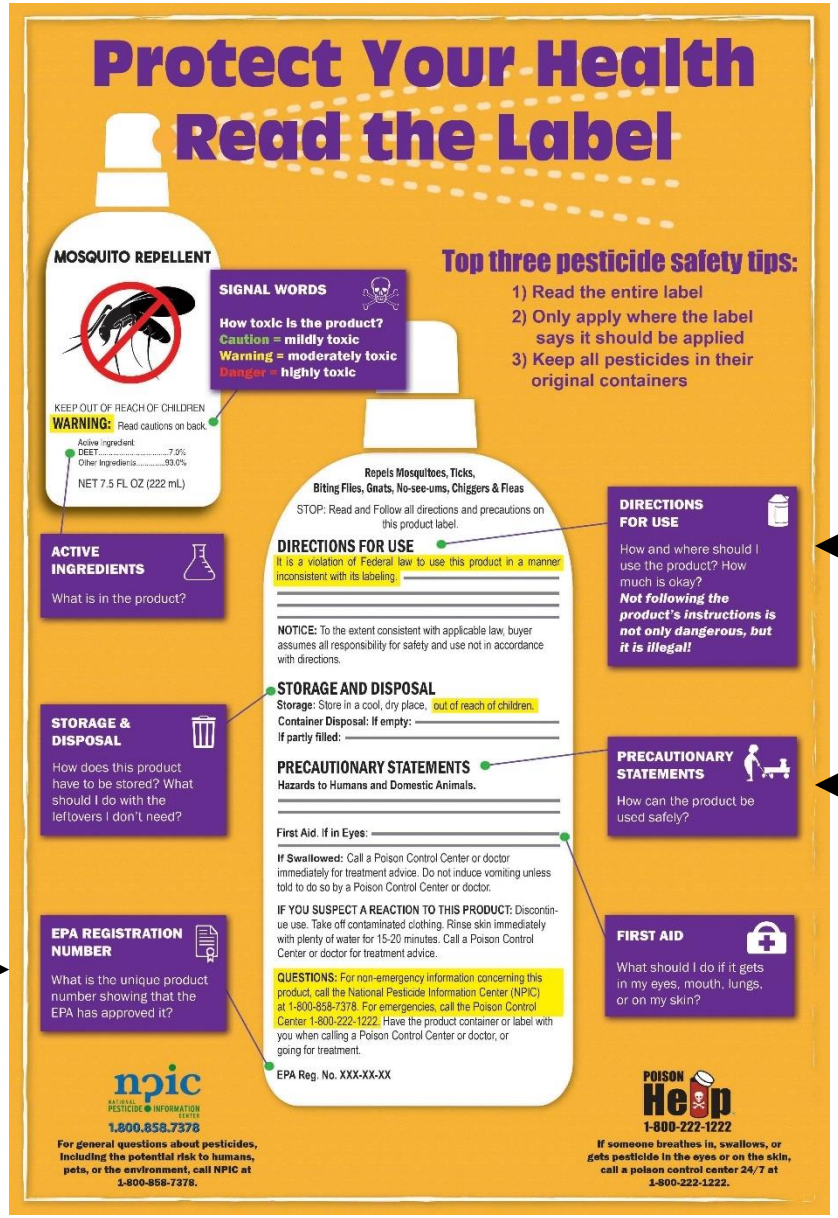
Hypochlorous Tabs Name	EPA Registration Number	Grams per tablet	Number tablets to make a gallon	Grams per gallon (g per tab x # tabs)	PPM for COVID 19	Contact Time
Effersan (US)	66570-2	4.0 grams	4	16 grams per gallon	1,150 PPM	5 minutes
ViroTab (Ireland)	71847-6	6.55 grams	2	13.1 grams per gallon	1,076 ppm	10 minutes
			8	52.4 grams per gallon	4,306 ppm	1 minute
Clearon EZ Bleach (US) (changing name)	69470-37	5.0 grams	2.5	12.5 grams per gallon	958 ppm (383.2 ppm per tab)	10 minute
			Or use 3 tabs so don't have to split one	15 grams per gallon	Only requires 958 ppm, but with 3 tabs it will be 1,149.6 ppm	10 minute

Reliable information for selecting and using disinfectants and approved application equipment:

The Primary Label:

A legal document!

EPA Registration Number →

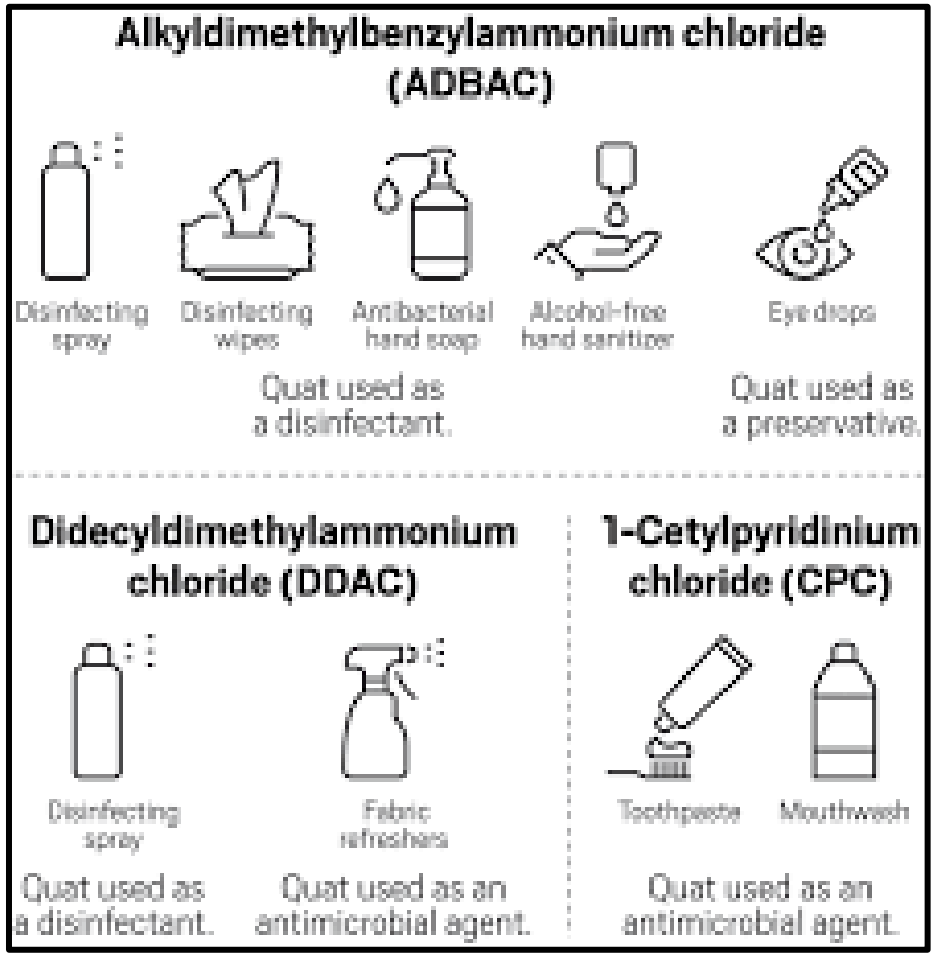


→ **Directions for Use**
(specific for each type of microbe, including use in equipment applicators)

→ **Precautionary Statements**

Prohibited Antimicrobial "Ingredients" on FAC118
(Includes active and non-active ingredients)

- **Hydrogen chloride (HCl)**
- **Phenols (e.g., Ortho-phenylphenol)**
- **Pine Oil**
- **Silver**
- **Quaternary ammonium chloride compounds (e.g., Benzalkonium chloride, ADBACs, DDACs)**



On-Site Generating Equipment for Disinfectants, Sanitizers, Cleaners

What is an on-site generator?

It is equipment that generates product on demand.

The equipment can be purchased or rented.

The two types of chemical solutions currently produced by on-site generation:

	Aqueous Ozone	Hypochlorous Acid (Electrochemically Activated Water)
Cleaners, deodorizers and degreasers	x	X (sodium hydroxide)
EPA Registered disinfectant and sanitizer		x
Green Seal Certified	x	X (sodium hydroxide cleaner only)
Ingredients and process	Air, water, electricity	Salt, water and electricity
Generation and dispensing	Wall mounted units and portable caddy units	Portable units, Wall mounted units
Stability	Lasts for about 2 hours unless stabilized with an additive	Can last for months depending on the solution concentration

FAC 118 Specifications for On-Site Generating Equipment for Disinfectants and Sanitizers

- **The FAC118 specification is for the "unit", not the product.**

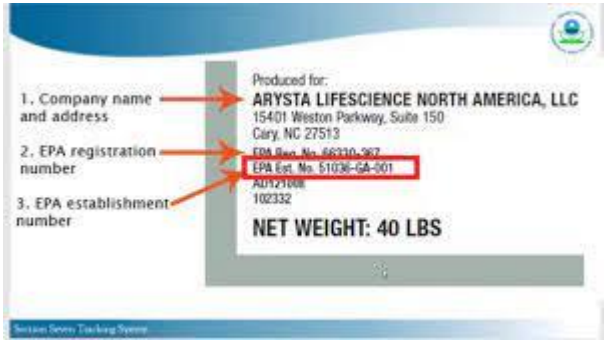
- **Although there are units approved by EPA for disinfecting and sanitizing, vendors on FAC118 must go through the "Alternative Approval Process" to have equipment listed for these uses.**

There are no approved units on the FAC118 at this time.

On-Site Generating Equipment on FAC118: Disinfecting

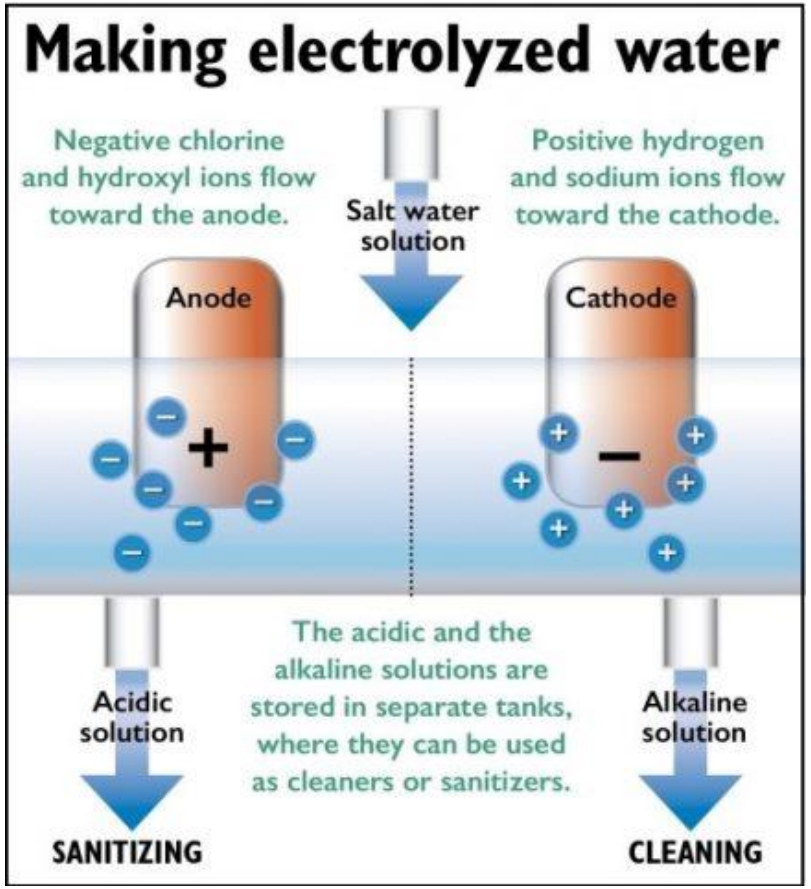
Criteria for On-site Generation of <u>Disinfectants and Sanitizers:</u>

- ✓ **Hypochlorous acid generators must maintain a pH of 4-6.5.**
- ✓ **All disinfectant generation units must disclose the efficacy their equipment provides and include independent documentation.**
- ✓ **All devices must meet Federal, State and Local requirements for its use.**
- ✓ **All units must have an EPA establishment number (a site-specific registration number assigned to an establishment that produces a pesticide, a device or an active ingredient used to produce a pesticide).**



FAC118 Criteria for On-Site Generating Equipment: Cleaning

All on-site cleaning product <u>generation units</u> must be certified by Green Seal.



Hypochlorous acid generators must maintain a pH of 4-6.5.

A conceptual illustration of the electrochemical activation process.
Illustration by Jared Johnson of Good Fruit Grower.

On-Site Generating Equipment on FAC118: Cleaning

Aqueous Ozone

- Is a sanitizer and cleaner reacting 3,000 times faster and 50% stronger than chlorine bleach. Reverts back to water.
- Effective against bacteria, virus, spores, mold, mildew, cysts, protozoan's, etc.
- Can be used on all surfaces (grout, glass, mirrors, porcelain, ceramic, plastic, fabric, stainless steel, etc.)
- Can be used in carpet extractors and floor scrubbers.
- Not an inhalation, skin contact or ingestion hazard.
- It is LEED certified.

Lotus Pro

On-Site Generating Equipment on FAC118: Cleaning

Stabilized Aqueous Ozone (SAO®)

SAO works by oxidizing organic matter, breaking it down into smaller particles and suspending it in solution.

SAO exceeds Green Seal Standards (GS-37 and GS-53) as an industrial cleaner.

Cleans floors, carpet, stone, marble, ceramic, hardwood, vinyl, walls, sinks, faucets, electronics, glass, etc.

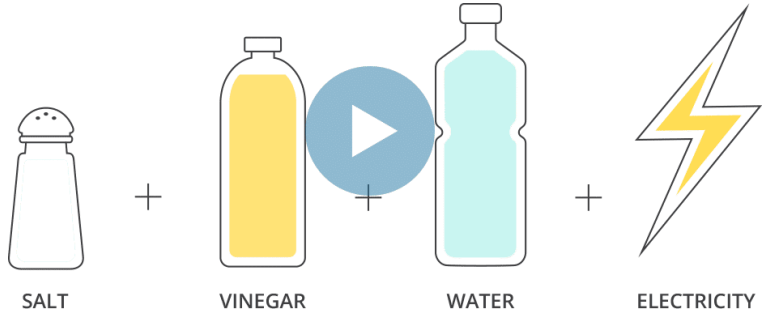
Tersano
Reed ORP Probe

On-Site Generating Equipment on FAC118: Cleaning

Force of Nature

Hypochlorous Acid - Electrochemically Activated Water

Uses electricity to convert tap water, with a capsule of salt, water and vinegar, into an all-in-one cleaner and deodorizer.



Generates 32 or 64 ounces

It is Green Seal certified as a cleaner.

NOTE: Although it is also EPA registered disinfectant (listed on EPA's List N for SARS-CoV-2), it is currently <u>not</u> approved on the FAC118 contract as a "<u>disinfectant and sanitizer</u>".

It is only approved on the contract as an on-site generating unit for "<u>cleaning</u>".

On-Site Generating Equipment on FAC118: Cleaning

Trio Rx™ by GenEon

Generates ½ gallon in 15 minutes

Hypochlorous Acid - Electrochemically Activated Water

5.5- 7.5 pH

EPA Reg. No. 91112-2, EPA Establishment No. 088681-KOR-001

NOTE: Although it is an EPA registered disinfectant, **it would need to go through special review process to be approved on the FAC118 contract as a "disinfectant and sanitizer".**

It is currently on FAC118 as on-site generating unit for a "cleaning" products.

Graffiti Remover – What are the health issues?

Health effects depend in part on which chemical you are exposed to. Some chemicals cause:

Eyes – burns

Skin – burns

Liver and Kidneys - permanent liver and kidney damage

Respiratory System - shortness of breath, asthma and allergies

Brain and Nervous System - headache, dizziness, lack of coordination, or nausea

Blood-Forming System - one class of chemicals, ethylene glycol ethers, can damage the bone marrow (where blood cells are formed), and red blood cells and cause anemia.

Reproductive System - damage eggs and sperm, or cause birth defects (this is not common).

Cancer - methylene chloride can cause cancer

Use of aerosols to apply the remover can increase respiratory exposures!

Source: Occupational Health Branch of the California Department of Health Services and the Labor Occupational Health Program at the University of California, Berkeley. *Removing Graffiti Safely*

Graffiti Remover – What are the operational issues?

Source: Removing Graffiti Safely, Occupational Health Branch of the California DPH Services and the LOPH, UC, Berkeley.

Safe removal requires assessing routes of exposure:

- **Removers come in liquid (aerosols or wipes) and solids (paste).**
- **Most school districts do not have a respiratory program to use respirators to protect employees using products requiring them.**

Effective removal involves understanding:

- **Media - spray paint, markers and stickers (not common).**
- **Types of Surfaces – porous (brick, concrete, wood), semi-porous (painted wood, fiberglass) and non-porous (e.g., glass, metal):**
  - **Many removers can damage surfaces.**
  - **Not all products work on all surfaces.**
  - **Sometimes several types of graffiti removers are needed.**

Source: EPA

Graffiti Remover – What are the alternatives?

EPA tested removal methods and identified effective alternatives:

Better Blasting Alternatives

uses high pressure water and abrasives

Test first!

Removes graffitti without chemicals

Consider additives (e.g., soap and blasting media)

Not on FAC118

Safer Chemicals

Effective on paint, markers and stickers

Safer Graffiti Abatement - Protecting Workers and the Environment

https://www.acgov.org/sustain/documents/2018-12-06-SaferGraffitiAbatement.pdf

Photo Source: EPA

Graffiti Remover – What are the alternatives?

EPA tested alternative methods to minimize use of removers:

Use of Protective Films and Graffiti Resistant Coatings

(not on FAC118)

Films

- are clear
- removable - one time use
- shield glass and signs (check warranty on signs)
- different brands have different levels of effectiveness for all kinds of graffiti and scratching
- may still need an aggressive remover, but surface will be protected

Coatings

- may not be VOC compliant
- may discolor the surface
- may be difficult to remove the graffiti from the coating than the original substrate

Check out EPA's research on protective films at:

A Fact Sheet: https://archive.epa.gov/region9/mediacenter/web/pdf/irta-graffiti-coat-film-factsheet.pdf

The full report: https://sfenvironment.org/sites/default/files/fliers/files/sfe_th_graffiti_report.pdf

Photo Source: EPA

Graffiti Removers – How can FAC118 help?

3rd Party Certified

- ***UL Ecologo Certified Graffiti Removers – Standards:***
  - UL 2759 - 2011 Standard for the Sustainability for Hard Surface Cleaners (2)
  - UL 2767 - 2011 Standard for the Sustainability for Paint and Varnish Remover (6)
  - **Product search: https://spot.ul.com/main-app/products/catalog/?keywords=graffiti+remover**
- ***Green Seal 53 Specialty Cleaning Products For Industrial & Institutional Use***

  Graffiti remover products shall:
  - **Demonstrate effectiveness in removing graffiti markings (e.g., paint, felt tip pen, crayon, lipstick),**
  - **While maintaining the underlying substrate (e.g., brick, sandstone, metal, wood).**

- **Also request from vendors to evaluate graffiti removers listed on the San Francisco Dept. of the Environment website, https://www.sfapproved.org/graffiti-control. Criteria:**
  - **methylene chloride, n-methyl-2-pyrrolidone, tert-butyl acetate, or nonyl phenol ethoxylates.**
  - **VOCs 30% or less for non-aerosol graffiti removers and 50% for aerosol products**

Graffiti Remover – Why rely on FAC118 expertise?

Be Aware!

Product advertised on the web as green:

- Low VOC and Low Odor
- Non-Toxic
- Soy-Based and Bio-Based
- No Prop 65 Chemicals
- Non-Flammable
- Non-Corrosive and pH Balanced
- Non-Aerosol
- Water Based and Soluble
- Readily-Biodegradable

Not Safe and Not on FAC118:

- 2 out of the 4 products advertised as safe have reproductive and other health hazards represented by the pictograms on their SDS.
- All 4 products require the use of a respirator.

Graffiti Removers – Product Application Considerations

Ensuring Safety

- **Consider hiring a contractor when a safer product is not available, and a respirator is required.**
- **Wear PPE as required on the Safety Data Sheet.**
- **When outside, always stand upwind from where you are spraying, and away from people.**

See *Removing Graffiti Safely*, https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/WRAPP/CDPH%20Document%20Library/graffiti.pdf

Enhancing Effectiveness

See *Graffiti Control by Surface*, by the San Francisco Dept of Environment: https://sfenvironment.org/sites/default/files/fliers/files/sfa_graffiti_control_by_surface4.pdf **- examples:**

- **Using "Scratchless" scrub pads.**
- **Using a water rinse or a pressure washer to assist removal.**
- **Waiting a bit for some types of products to work may make them more effective.**

De-Icers and Snowmelt Products

Conventional

The most used and economical deicer is sodium chloride (salt). Although effective, it:

- **Impacts drinking water, surface and ground water, and roadside vegetation.**
- **Is toxic to aquatic life.**
- **Contributes to the corrosion of vehicles and infrastructure.**

Alternatives De-Icers and Snowmelt Products on FAC118

Certifications: Safer Choice **Green Seal**

Acceptable Products can also be listed on the:

Clear Roads Qualified Products List

(except for products listed in Category 8: Non-Corrosion-Inhibited Sodium Chloride):

https://clearroads.org/wp-content/uploads/dlm_uploads/QPL_Updated-9.15.21.pdf

Alternative De-Icers and Snowmelt Products: Understand How They Work

Alternative Products - Green deicers fall into three categories:

- Agricultural-based products (e.g., beet juice)
- Acetates (e.g., calcium magnesium acetate, potassium acetate)
- Less corrosive chloride compounds (e.g., magnesium chloride, calcium chloride, potassium chloride)

Some Advantages (in addition to lower toxicity and less corrosivity):

- Applying products such as de-sugared beet juice to roadways can reduce the need to plow snow as often.
- Purchasing some environmentally preferable snow and ice control can earn “green” building credits under LEED.

Responsible Purchasing Network, Green Purchasing Best Practices: Deicers, Responsible Purchasing Network, December 2013

De-Icers and Snowmelt Products

Resources for More Information:

Local Government Environmental Assistance Network

Provides a summary of issues:
storage, application of, and alternatives.
https://www.lgean.net/toxics/deicing.php

Links to more information from the Minnesota Stormwater Manual:

- Environmental impacts of road salt and other de-icing chemicals
- Table summarizing of properties of deicing agents

Floor Strippers – Health and Safety Issues

What are the some of the health issues?

Floor strippers have historically been some of the most dangerous custodial floor care chemicals to work with:

- **The extremely high pH of 13 – 13.5 is corrosive and can blind workers and burn skin and the respiratory system.**
- **Use of corrosive in spaces with poor ventilation pose inhalation hazards.**
- **2-butoxy ethanol, a common ingredient in floor strippers, is a possible human carcinogen.**
- **Baseboard stripping products are applied using aerosols which can cause more of an inhalation exposure for the user.**

Some of the ingredients:

- **Potassium Hydroxide**
- **Diethylene Glycol Butyl Ether**
- **Alcohol Ethoxylates**
- **2-butoxyethanol**
- **Monoethanolamine**

GHS
Danger

NFPA:
Health – 3
Flammability - 4

Floor Strippers – Health and Safety Issues

Workers typically <u>do not</u>:

- **wear PPE (chemical splash googles, nitrile gloves, or slip resistant booties), or**
- **have access to emergency eyewash stations while mixing stripper or stripping floors.**

Slips and Falls:

- **a major health and safety issue when the stripper causes the finish to become extremely slippery.**

Floor Stripper – How can FAC118 help?

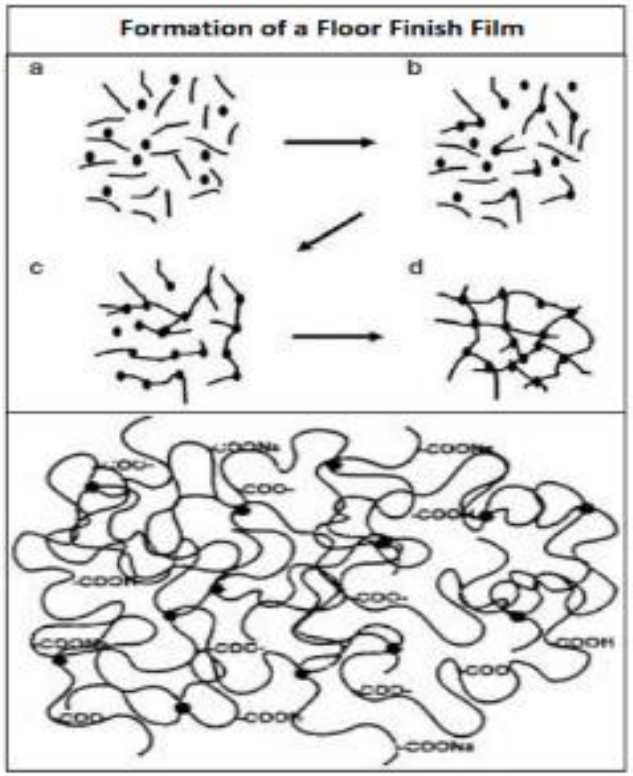
Alternative Strippers

What are the attributes of alternative strippers?

- **Not a skin sensitizer**
- **Not corrosive - will not blind or trigger asthma**
- **Lower VOCs - lower inhalation hazard**

Green Seal Standard GS-40, Edition 2.5

Floor Stripper – Issues and Alternatives



Selecting the correct stripper requires understanding the composition of the floor finish and how strippers work to remove it:

- **A floor finish is made up of polymers (long chains of molecules), which become intertwined with one another by "crosslinking".**
- **Conventional finishes used metal zinc molecules to crosslink to increase durability.**

There are two mechanisms that occur simultaneously to remove finish:

- **An amine breaks downs the zinc crosslinking.**
- **A solvent dissolves and reliquefies the finish.**

Source: https://www.multi-clean.com/wp-content/uploads/2015/04/GreenFloorStrippersTechBulletin1.pdf

Floor Stripper – Issues and Alternatives

- **Strippers are formulated to work with specific types of floor finishes – check with your vendor:**

  Although most green strippers are designed to work on a non-zinc, *calcium* crosslink, some can strip a *zinc* crosslinked floor finish.

- **Sometimes a more aggressive stripper can be used to remove a buildup of a zinc-based finish, and then it is possible to transition to a green product.**
- **Consider using equipment instead of chemicals to dry strip (if it is not an asbestos floor, which requires wet stripping).**

Green Seal Green Report 2004, Floor-care Products: Finishes & Strippers

Floor Stripper – How can FAC118 help?

- **Green Seal Standard GS-40, Edition 2.5:**
  - **pH of > 2.0 but less than 11.5; Must not be corrosive to skin or eyes**
  - **Must not be a skin sensitizer or carcinogen, mutagen, or reproductive toxin.**
  - **VOCs - 3% (versus 10 to 30 percent VOC of conventional products)**

- **UL ECOLOGO**
  - **EcoLogo - pH no higher than 7 percent.**

Floor Stripper Alternatives: How Can FAC118 help?

Stripping a floor involves complete removal of all layers of finish and is needed when there is a significant buildup of dirt and gunk around the edges.

Scrubbing and recoating is performed when there is little to no finish remaining on the floor to prepare it for reapplication of finish.

It uses less quantity of less hazardous chemicals, and a much less aggressive scrubbing pad to remove the top layer(s), or remaining layer of finish and embedded dirt.

Assess your floors to determine where they only need a *scrub and recoat*.

Work with your vendor to determine which products and equipment on FAC118 can be used.

https://www.vanguardozarks.com/2020/03/the-difference-between-strip-and-wax-and-top-scrub-and-recoat/

Floor Stripper Hazards – How can FAC118 help?

Provide Access to Alternative Emergency Eyewash Systems

Attachments to a sink or faucet that meet the ANSI Z358.1-2014 standard.

Enable use of the sinks for other things.

Portable systems with 15-minute flush capacity and preservative to use with it.

Addresses hazards for staff in transportation, science, art, food service, tradespersons, etc.

Floor Stripper Hazards – How can FAC118 help?

Prevent Slips, Trips and Falls - Slip Resistant Footwear

- Reusable - Rinse and reuse
- Disposable - One size fits all

Protect Eyes – Chemical Splash Goggles

Protect Hands – Nitrile Gloves

Used Syringe Pick-Up Tools

Credit: MA Department Labor Standards

Cut resistant gloves
that meet ANSI Puncture Level 4 or 5.

Puncture resistant gloves
that meet ASTM F2878 (Fine-Object Threat)

Trash picker tool

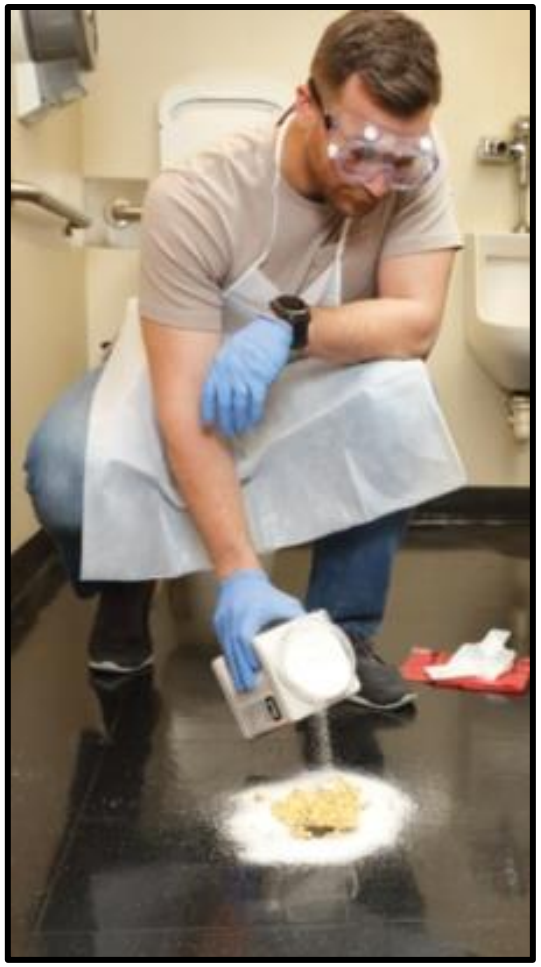
***Sharps container* - should be able to:**

- **Stay open – hands free**
- **Be stable on the ground**

Blood Spill Kits

What is the issue with Blood Spill Kits?

- **Disinfectants and antiseptics expire.**
- **Sorbents can contain fragrances and antimicrobials.**
- **Most kits can only be used once as some supplies are used up.**
- **Refillable supplies are not typically available.**
- **Do not contain all the items truly needed for a proper spill clean-up (e.g., all purpose cleaner, nitrile gloves for use with disinfectant).**



I encourage custodians to use these kits for all body substance clean-up!

BBP Spill Kits – for Body Fluids

What is the alternative to BBP Spill Kits? BBP Spill Clean-up Buckets!

BBP Spill Clean-Up Bucket Info
Spill Clean-Up Protocol
BBP Kit Inventory Form
PPE Supplies
Apron with Sleeves
Disposable Booties
Goggles
Caution Tape
Nitrile Gloves
Face Mask with Guard

BBP Spill Clean-Up Supplies & Equipment
Absorbent Powder
Caution Tape
Trash Bags
Biohazard Bags
Paper Towels and Cloth Rags
All-Purpose Cleaner
Disinfectant
Hand Sanitizer
Sharps Container
Tongs
Dustpan and Scraper (can be disposable)

Blood Spill Kits – for Body Fluids

BBP Spill Clean-up Bucket Refillable Supplies and Equipment!

All Purpose Cleaner

Disinfectant for BBPs

Hand Sanitizer

Sorbents – for body fluids and chemical spills

What are Sorbents?

What is Absorption?

***Ab*sorbents are materials that pick up and retain liquid causing the material to swell (50 % or more).**

When a liquid is absorbed, it assimilates into the media.

How Does Adsorption Work?

***Ad*sorbents are insoluble materials that are coated by a liquid on its surface.**

When a liquid is adsorbed, it sticks to the surface of the media.

How are Sorbents Used to Manage Spills?

Sorbents are insoluble materials or mixtures of materials used to recover liquids through the mechanism of absorption, or adsorption, or both

Sorbents – for body fluids and chemical spills

What do institutions use sorbents for?

- **Grounds crew – landcare equipment fluids**
- **Custodial – cleaning, disinfecting, and floor refinishing chemicals, and clean-up of infectious waste**
- **Tradesperson – paints, solvents, etc.**
- **Transportation – vehicle fluids and maintenance and repair products**
- **Science Department – chemicals, mercury, acid, bases**
- **Food Service – oils, cleaning chemicals, and antimicrobials**
- **Nursing and SPED – infectious waste**

Sorbents – for body fluids and chemical spills

What are the FAC118 specifications for sorbents?

All absorbents and adsorbents shall meet one or more of the following standards:

- **Contain 89% total recycled content.**
- **Certified as a Biobased Product by the USDA.**
- **UL ECOLOGO certified.**
- **May not contain fragrances.**
- **May not have a danger warning or be listed as a corrosive, carcinogen, mutagen, reproductive toxicant, respiratory sensitizer, irritant to respiratory track, eyes and skin on the SDS or have a Prop 65 warning.**
- **Does not contain diatomaceous earth, vermiculite, or Crystalline Silica (there are 2 forms of silica; 1) crystalline, 2) non-crystalline (amorphous), which is safe to use).**

Example of a safe alternative

I also recommend no antimicrobial agents.

Sorbents – for body fluids and chemical spills

What are the alternatives for both types of spills?

Example – Coconut fiber

- Instantly absorbs spills 15X more than clay
- Super lightweight
- Poses NO health risks
- Made from all-natural renewable by-products
- Works on all types of spills
- Less than 25% of the total cost of clay use and disposal
- Non-reactive – Unlike clay absorbents
- No Dust!

Caution – it can be dusty!

Sorbents for Latex paint

XSORB Rock Solid Paint Hardener

- On FAC 118
- EcoLogo certified
- 2 cubic bag hardens up to 38 gallons of water-based paint.

Microfiber

Successful implementation relies on your ability to launder it!

Considerations for Inhouse laundering:

- **Is there time for staff to launder it?**
- **Do you have the facilities to launder the mops and cloths?**
- **Where are laundering facilities located? In each building? In the kitchens?**
- **Are you allowed to use them? On what schedule?**

Microfiber Laundering Options – Rent or Own When Outsourcing

Considerations	Customer Owned Goods	Rent
Quality	You decide when to replace it.	Company will make items last as possible. Unless in contract, you won't receive the same items back and have no way of knowing what they were used for.
Selection	You have open ended options.	Choices may be more limited (e.g., color coded, denier quality, sizes)
Inventory Control	You must track items sent and returned. You pay for lost items.	You must track amount sent and returned.
Cost	Purchasing in bulk wholesale might cost $0.60 each for replacement wipers. You bear cost of detergent, water and electricity.	Provision and laundering might cost $0.15 per item per week. Cost included for of detergent, water and electricity
Item Replacement Costs	Higher	Lower

Microfiber – Portable Washing Equipment Considerations

Portable self-contained (alternatives to plumbed units). Criteria to consider:

- **What size is it? What capacity is it?**
- **What functions does it do - fill, agitate, spin, empty????**
- **What facilities does it need - faucet, drain, 110 or 220 volt plug socket???**

I-Team North America Trident CRPSMARTCLEAN

Example of a unit on FAC118:

- **Several wash, rinse and spin settings**
- **Pumps out water**
- **Programable for up to 24 hours**
- **Easy to hook up**
- **Need sink, 110-volt plug socket, and a faucet**
- **Weighs 64 lbs. and is 22" x 22" x 36" high**

Microfiber - *Laundering Service FAC118 Criteria*

- **Services - pick up, laundering, and returning:**
  - **Items are washed in system with low to medium temperature water, with an FAC118 approved laundry detergent (without chlorine bleach).**
  - **Washed and dried alone, without other rags, clothes or fibers (prevents fibers from clogging pores).**
  - **Dried in system with low to medium temperature air.**
  - **Folded and bagged.**

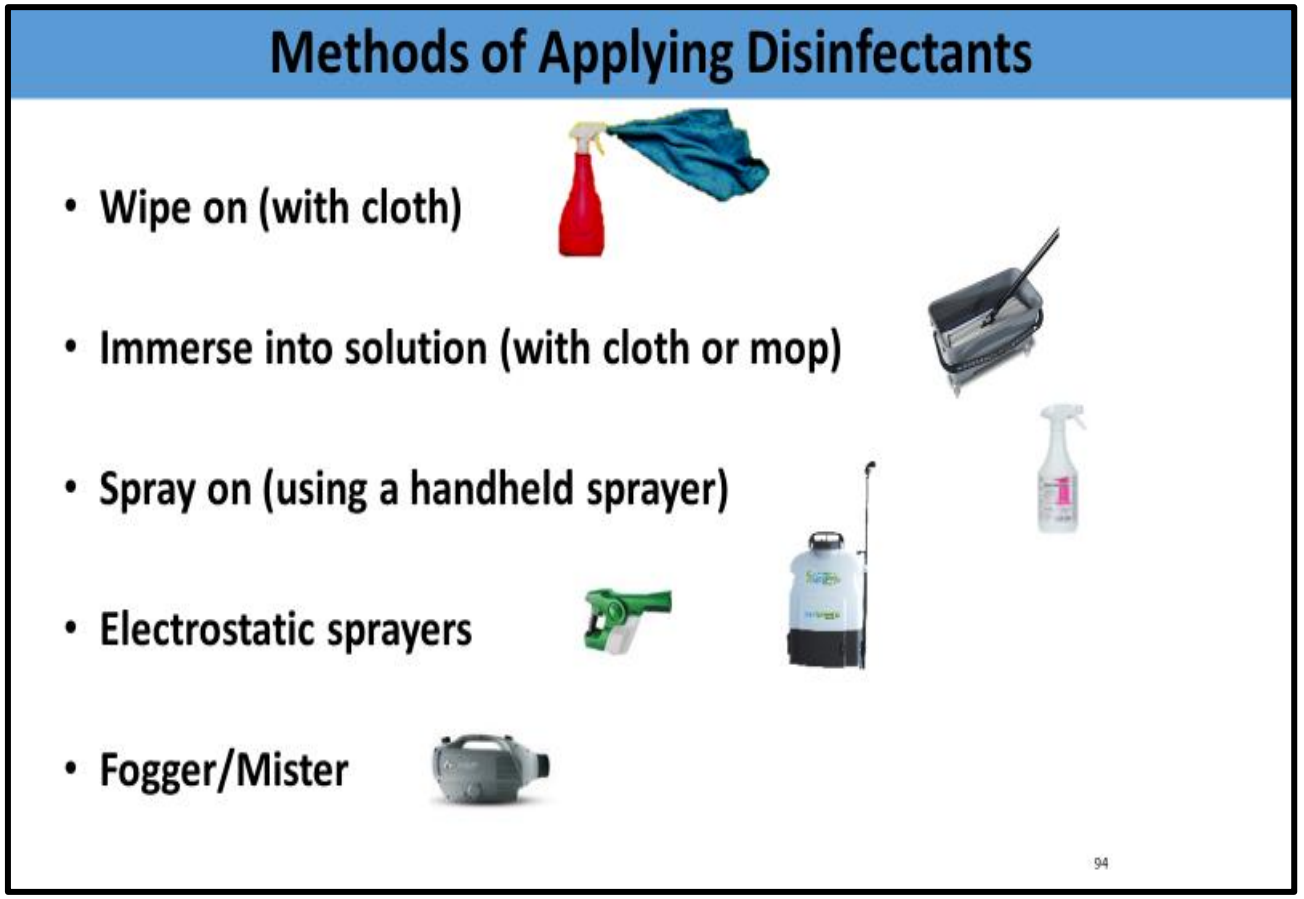
- **These guidelines should be followed for your onsite laundering – a few points:**
  - **Drying can be: 1) tumble dry low heat below 140 ^{o}f, 2) no heat, or 3) hang to dry.**
  - **Do NOT use fabric softener as it contain oils that clog up microfibers and makes them less effective.**

Selection of Disinfectant Application Equipment & of Products for Use in Them:

Electrostatic Sprayers
Disinfectant and Sanitizing Wipes

Disinfectant Application Options

Consider why you would want to use equipment to disinfect?



- What do I want to use it for?
  - Efficiency - manage larger areas in a shorter amount of time?
  - Effectiveness?
  - Public perception?
- Can these technologies be used safely?
- Are the products I want to use approved for use in this equipment and how do I find out?

Status of Disinfectant Application Equipment on FAC118

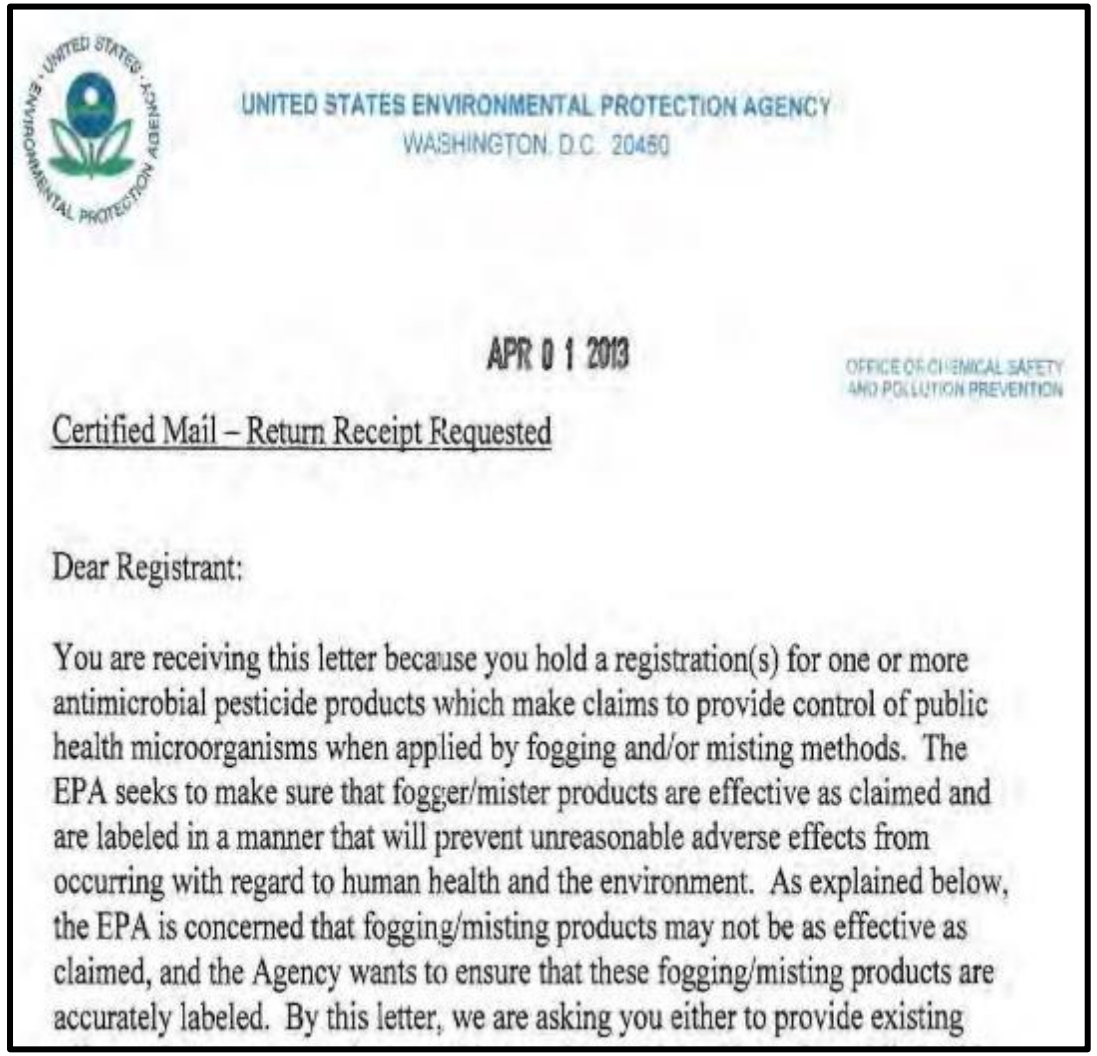
- **Electrostatic spraying units are acceptable only when they are designed to be used with a FAC118 contract - approved disinfectant.**

- **No pesticide or paint sprayers are allowed.**
- **No mister/foggers**

Why are mister/foggers not on FAC118?

It is partially based on EPA's concerns:

1. **Health risks – the fine mist stays in air longer, thus poses an inhalation hazard.**
2. **Efficacy – the mist may not cover the surface adequately and stay wet long enough for required contact time.**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 0 1 2013

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

Certified Mail – Return Receipt Requested

Dear Registrant:

You are receiving this letter because you hold a registration(s) for one or more antimicrobial pesticide products which make claims to provide control of public health microorganisms when applied by fogging and/or misting methods. The EPA seeks to make sure that fogger/mister products are effective as claimed and are labeled in a manner that will prevent unreasonable adverse effects from occurring with regard to human health and the environment. As explained below, the EPA is concerned that fogging/misting products may not be as effective as claimed, and the Agency wants to ensure that these fogging/misting products are accurately labeled. By this letter, we are asking you either to provide existing

Determine if a disinfectant is approved to be used in applicators.

The pesticide label, a legal document, will state the types of equipment a disinfectant can be used in.

Vendors and manufacturers have been selling disinfectants to be used in equipment not listed on the product label. This is a violation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Example: A company has stated on their website that they:

"conducted OSHA and NIOSH third party testing ensuring that there are no safety concerns for acute or long-term worker exposure. It was established that exposure levels of xxx when sprayed with the Electrostatic Sprayer fall below established Permissible Exposure Levels (PEL)."

How to determine if a product is approved to be used in an electrostatic sprayer?

EPA Expedited Review for Adding Electrostatic Spray Application Directions for Use to Antimicrobial Product Registrations

- **Until April 2021, EPA had allowed industry to submit claims for review that their products can be used in the various types of application equipment through an "expedited review process".**
- **As a result, there are some additional products now on List N and more under review.**
- **Although some manufacturers advertise, and some vendors promote the use of products in this equipment, it is important to verify these claims by checking the "Formulation" field in List N and/or the product's EPA Pesticide Registration information.**

Look on EPA's List N: Products Approved for COVID-19

Searching for the Approved Product Applicators on EPA's List N Advanced Search Page

1. **You can search first by product (use the EPA Registration Number, or**
2. **you can search by "Formulation Type".**

Formulation Types on EPA List N

Dilutable: Liquid that can be diluted with water at different concentrations for approved uses.

Ready-To-Use (RTU): The product is already diluted to the appropriate concentration.

Impregnated materials: Product with the disinfectant built into it (e.g., toilet wand).

Pressurized Liquid: Aerosol cans.

Electrostatic spray: Involves the use of an electrostatic sprayer.

Wipe: Towelette pre-saturated with disinfectant

Residual: Kills viral particles that come into contact with the surface after product is applied.

Fog; Mist: Involves the use of equipment to aerosolize a disinfectant.

Note: EPA does not define the size of the micron which distinguishes if something is a fog or mist.

Examples of Approved Products on EPA List N

Results from the advanced search for approved products for use in applicators on EPA's List N

List N: Disinfectants for Use Against SARS-CoV-2 (COVID-19)
Date Accessed: 11/11/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Contact Time (in minutes)	Formulation Type	Surface Types	Use Sites	Why is this product on List N?	To kill SARS-CoV-2 (COVID-19), follow disinfection directions for the following pathogen(s)	Date Added to List N
1677-259	Dodecylbenzenesulfonic acid; L-Lactic acid	CW32A-RTU	Ecolab Inc	0.25 (15 seconds)	Ready-to-use; Electrostatic spray	Hard Nonporous (HN); Food Contact No Rinse (FCNR)	Healthcare; Institutional; Residential	Tested against SARS-CoV-2 (COVID-19); Emerging viral pathogen claim	SARS-CoV-2	10/29/2020

Why do products need to be approved to be used in equipment?

- **A disinfectant's safety and effectiveness may change based on how it is used (EPA).**
  - ***Why is this an issue?***
    - **If the product was not tested and EPA has not approved its use in an applicator, a manufacturer cannot guarantee it's efficacy.**
    - **This is a liability when dealing with an infectious disease transmitted by contact with surfaces.**
- **If the type of product applicator is not listed on the label, and the manufacturer has not submitted safety data:**
  - **There will be no respiratory precautions on the label.**

Why is this an issue? **You cannot determine determine PPE and other protective measures.**

What are electrostatic sprayer safety issues?

- **Health WARNING from Victory Sprayer:**
  - **Electrostatic devices may interfere with sensitive medical devices such as pacemakers, defibrillators, or similar devices.**
  - **DO NOT operate an electrostatic sprayer or stand within 10 feet if you use such medical devices. Contact your physician.**
  - **Some equipment may be able to be used without the electrostatic function.**

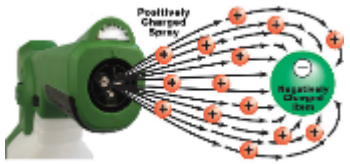
Note: It will not provide the same type of coverage.

Note: These key points do not replace reading the equipment manual.

What are electrostatic sprayer safety issues?

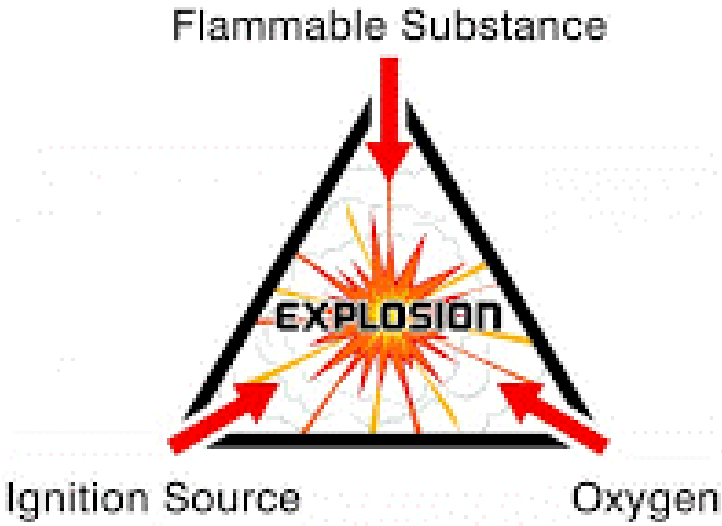
Fire and Electrical Safety

- **Do not operate cordless sprayer in explosive atmospheres (e.g., in presence of flammable liquids, gases, or dust) as cordless sprayers create sparks, which may ignite the dust or flammable vapors.**



- **Use only with water-based products (not solvent based).**

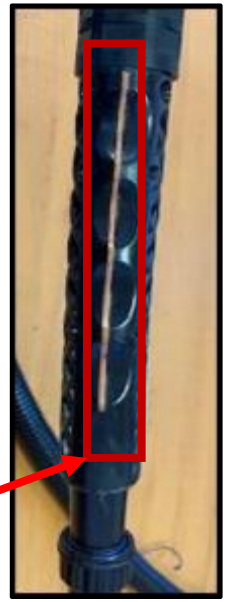
- **Do not touch or insert any foreign objects into the nozzle to avoid electrical shock.**

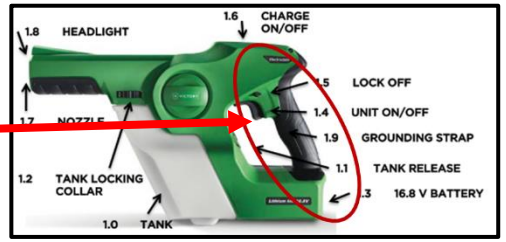


https://www.raytecled.com/blog/identifying-zone-0-zone-1-and-zone-2-hazardous-areas/

What are electrostatic sprayer safety issues?

- **Preparing to Use Electrostatic Equipment:**
  - **Make sure you are properly grounded when using a sprayer to prevent becoming electrically charged and avoid static sparking which can cause fire or electric shock.**
  - **Most units have grounding strips or straps in the handle.**
  - **Some units come with protective gloves.**





What are electrostatic sprayer safety issues?

Make sure you are properly grounded - <u>Keep it dry</u>:

- **Always have dry hands when gripping the grounding strip on the handle.**
- **Wait until after a newly washed floor is dry to use the sprayer in the room.**
- **Make sure there is no standing water under your feet, and do not allow the unit to drip and do not stand in any puddled area.**

What are electrostatic sprayer safety issues? Settings to Minimize Product in Air

Setting the nozzle for the largest droplet size:

Although some equipment has different nozzles or nozzle settings designed for different functions and contact times:

EPA requires manufacturers to state on the label of the product approved for use in electrostatic sprayers:

"Spray droplet particle size should be limited to a volume median diameter (VMD) ≥40 µm."

What are EPA's requirements for respiratory protection for use of disinfectants in electrostatic sprayers?

EPA provides general guidance to manufacturers on the respiratory requirements required to be on their label. Chemicals with:

- **Low vapor pressures (less than 1. X 10^{-4} mm Hg):**
  - **N95 filtering facepiece respirators, or**
  - **Half face respirators with N95 filters.**

- **High vapor pressures (greater than 1. X 10^{-4} mm Hg): (e.g., hydrogen peroxide**
  - **Half face respirators with chemical specific cartridges and N95 filters.**

From: Expedited Review for Adding Electrostatic Spray Application Directions for Use to Antimicrobial Product Registrations

Source: Expedited Review for Adding Electrostatic Spray Application Directions for Use to Antimicrobial Product Registrations | Pesticide Registration | US EPA

Lynn Rose

Check to see if applicator information is referenced in the product's SDS:

What does it tell you?

Examples of product SDSs revised after the products were approved for use in electrostatic sprayers.

Oxivir TB Disinfectant that contains the ingredient hydrogen peroxide.

Personal Protective Equipment

It is the responsibility of the employer to determine the potential risk of exposure to hazardous chemicals for employees in the workplace in order to determine the necessity, selection, and use of personal protective equipment.

Eye protection:	No personal protective equipment required under normal use conditions.
Hand protection:	No personal protective equipment required under normal use conditions.
Skin and body protection:	No personal protective equipment required under normal use conditions.
Respiratory protection:	No personal protective equipment required under normal use conditions. Wear a half face respirator with chemical specific cartridges and N95 filters when an electrostatic sprayer is used.
Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice.

1. **Although Oxivir TB is considered one of the safer disinfectants with all zero ratings on the NFPA Scale, it does require the use of a respirator due to having the ingredient hydrogen peroxide.**
2. **The SDS for this disinfectant does list the respiratory protection for use with electrostatic.**

CloroxPro™ Clorox® Anywhere® Daily Disinfectant and Sanitizer that contains the ingredient, hypochlorous acid.

Individual protection measures, such as personal protective equipment

Eye/Face Protection	No protective equipment required. Recommended use of eyewear protection when using through a mechanically powered sprayer.
Skin and Body Protection	No special protective equipment required.
Respiratory Protection	No protective equipment is needed under normal use conditions. If irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

1. **The reference to "a mechanically powered sprayer" does not specify electrostatic specifically, even though it is documented elsewhere to be approved for use in electrostatic applicators.**
2. **The disinfectant does not require a respirator to use.**

Clarify Proper Use of Disinfecting Wipes

- There is extensive misuse of wipes.
- This may be due to the many types of wipes, including; disinfecting, sanitizing, cleaning and hand wipes.
- Use the correct product for the job to prevent exposure to disinfectants.
- If use is authorized, the district should provide wipes approved for COVID-19, and specify how, when and where they can be used.
- Students are prohibited from using disinfecting wipes.

Using Disinfecting Wipes at School

What disinfectants can be used on hard surfaces to kill the virus that causes COVID-19?

Antimicrobial Pesticides

- Disinfectants – approved by EPA to be effective against specific viruses.
- EPA List N for Emerging Pathogens – lists disinfectants for use for COVID-19 on surfaces.

See fact sheet "Choosing Safer Disinfectants" from the EPA List N.

What are disinfectant wipes?

☑ Disposable material soaked in disinfectant.

While wipes are convenient, if used incorrectly, they can spread germs, give a false sense of security that surfaces are disinfected, and cause unnecessary exposures.

What should wipes not be used for?

☒ They are NOT handwipes or baby wipes, and should NOT be used on skin.

☒ They should NOT be used on produce, or have contact with food.

How can I safely and effectively use wipes?

1. Protect hands - put on chemical resistant gloves, even if label doesn't mention it.
2. Wash and rinse surface to enable disinfectant to be in direct contact with germs.
3. Shake wipe container with lid securely on to wet wipes with any liquid that settled.
4. Disinfectants only work when wet! Use enough wipes to keep surface wet for the "contact time' listed on label, which can vary by product and type of germ.
   Use wipe(s) *only once on one surface* to prevent spreading germs around.
5. Rinse surface if it will be in contact with skin or food, and label directs you to do so.

Who can use wipes in school?

☑ Only adults should use disinfecting wipes.

☒ Children under 18 should NOT use wipes.

Keep Out of Reach

Where can I get more information?

www.informedgreensolutions.org
Poster funded by: Toxics Use Reduction Institute. UMass. Lowell

Sources: NPIC, 1.800.858.7378, npic@ace.orst.edu
Health News, 6/3/08 Study Antibacterial wipes can spread superbugs, Michael Kahn

Surface Sanitizer *versus* Hand Sanitizer

Regulated by two different agencies for different uses:

These two alcohol-based products may look similar!

Need to read the label

Pesticides – Sanitizers and Disinfectants

Used on surfaces, non-living things

Example: wipes for the bathroom

Regulated by the U.S. EPA

Drugs and Antiseptics

Used in or on living things

Example: hand-sanitizing wipes & hand sanitizers

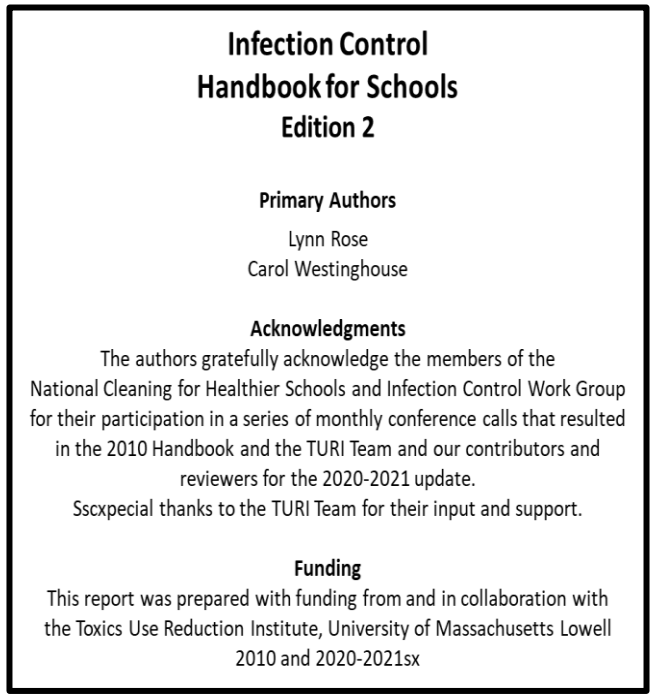
Regulated by the U.S. FDA

Example of Incorrect advertising - This hand sanitizer is a disinfectant for external use.

Concept by NPIC: http://npic.orst.edu/factsheets/antimicrobials.html

Provide Information and Free Technical Resources

Many documents referenced in this presentation are available on the Toxics Use Reduction Institute (TURI) and Informed Green Solution, Inc. websites.



Infection Control
Handbook for Schools
Edition 2

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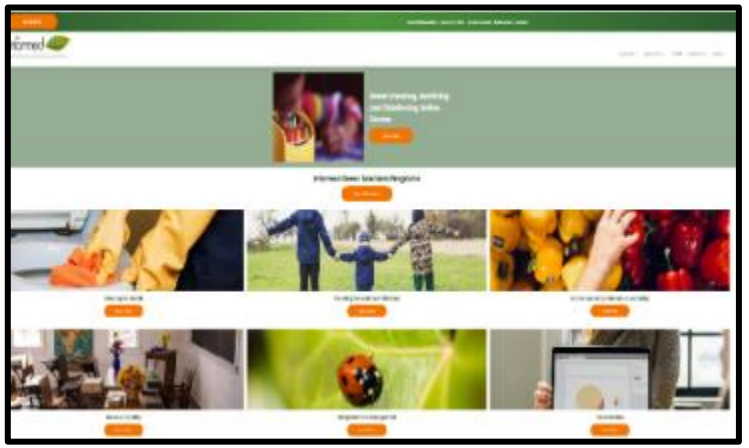
https://www.turi.org/Our_Work/Community/Topic_Areas/Schools/Cleaning_for_Healthier_Schools_and_Infection_Control_Workgroup_Statewide/Project-Materials/Infection-Control-Handbook

https://www.turi.org/Our_Work/Cleaning_Laboratory/COVID-19_Safely_Clean_Disinfect/Safer_Cleaning_and_Disinfection_for_Schools



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