



Floor Cleaning Processes and Planning—A Holistic View

Insights and Best Practices for Maintaining Clean, Healthy Environments

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Know the Difference: **COVID-19 & SARS-CoV-2**

The COVID-19 pandemic crisis has caused some confusion with nomenclature. COVID-19 is the pandemic disease that is caused by the SARS-CoV-2 virus. COVID-19 is the abbreviation for coronavirus disease 2019. SARS-CoV-2 is the abbreviation for *Severe acute respiratory syndrome coronavirus 2*. The EPA has published a list of disinfectants only, not sanitizers, that can be used to control the SARS-CoV-2 virus on hard non-porous environmental surfaces.

Know the Difference: **Clean, Sanitize & Disinfect**

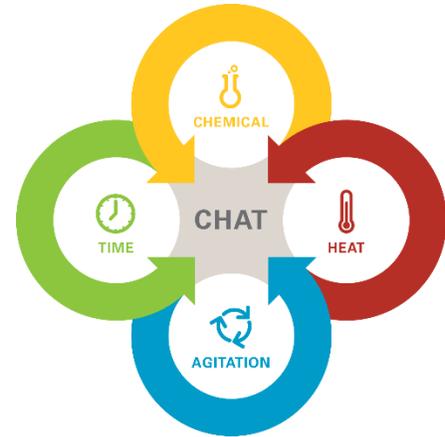
The spread of COVID-19 has put a new spotlight on the importance of maintaining clean, healthy environments. The best practices for doing this are well established. *Cleaning* is the fundamental first step in this process. It cannot be skipped and it must be well-executed to get the results you want.

Additional steps of either *sanitizing* or *disinfecting* can take place after cleaning has been accomplished. In most cases, sanitizing is done where there is low risk of contamination from blood-borne pathogens or bodily fluids and generally refers to lessening or reducing the presence of bacteria or viruses. Hospitals, clinics, schools and other organizations that have higher risks of blood and other bodily fluids need to disinfect surfaces to almost completely eliminate or kill viruses and bacteria. This is especially true for patient rooms, emergency rooms, restrooms, surgical suites and other areas where people frequently introduce both airborne and blood-borne pathogens to the environment.

Often times, cleaning, sanitizing and disinfecting are used interchangeably as these words have different meanings in different parts of the world. It's important to know the difference to plan, communicate and execute processes correctly and to accomplish desired results.

Cleaning: Cleaning is the physical removal of soil, debris, residues and organic substances from the surface. On a hard non-porous floor, this process is best performed with a walk-behind, ride-on or robotic auto-scrubber that applies fresh cleaning solution and provides agitation and vacuum recovery as it removes contaminants from the floor. This process doesn't kill germs, but it helps remove soil and other physical contaminants on the surface.

In 1959, Dr. Hubert Sinner discussed four basic elements of cleaning and how they interrelate with each other. The four basic elements are **Chemical, Heat, Agitation and Time**. Cleaning performed with an auto-scrubber provides strong cleaning results due to high level of "agitation" and a consistent flow of "chemicals" in fresh cleaning solution.



This first step is essential, as sanitizers and disinfectants perform better when soil has been removed from the surface before application.

Sanitizing: A sanitizer is "a substance, or mixture of substances, that reduces the bacterial population in the inanimate (hard surfaces) environment by significant numbers, but does not destroy or eliminate all bacteria".¹ Non-Food Contact Sanitizers are used on surfaces, such as floors, that do not contact food. These types of sanitizers "demonstrate a reduction of $\geq 99.9\%$ in the number of specific microorganisms within 5 minutes".²

Disinfecting: A disinfectant is "a substance, or mixture of substances that destroys or irreversibly inactivates bacteria, fungi and viruses, but not necessarily bacterial spores, in the inanimate environment".¹ Traditional chemicals or device disinfectants are used on hard non-porous surfaces. In general, disinfectants demonstrate a reduction of $\geq 99.9999\%$ in the number of specific microorganisms within " ≤ 10 minutes of contact"³.

Points of Interest When Sanitizing or Disinfecting Your Floor:

- Generally speaking, floors are deemed non-critical surfaces for most environments and disinfecting them has a limited effect. See page 6 for more information.
- Make sure the product you're using has the desired efficacy claims and is appropriate for your flooring type.
- Take steps to avoid slip and fall accidents, such as immediately restricting traffic from the area and using proper safety signs; keep the signs up until the surface has dried completely after the required contact time.
- Apply sanitizer or disinfectant according to label dilution using a procedure which allows the floor surface to remain wet for the required contact time stated on the label for that organism.
- Sanitizers and disinfectants are often dispensed through dilution systems. Make sure the dispensing system is properly diluting to proper concentration.
- Ensure that cleaning professional staff is aware of the required contact time for each product as sanitizers or disinfectants with different contact times could be used in the same facility.
- Take care that proper personal protective equipment is worn throughout the process.

Dangers of the Increased Use of Disinfectants

There are significant risks when using disinfectants — potential for chemical exposure, accidents and damage to physical assets. It's critical to review labels and Safety Data Sheets for protection requirements. Some of these risks to review include:

- Improper applications of disinfectants that don't provide adequate contact time i.e. auto-scrubber in traditional mode.
- Increased inhalation and skin and eye irritations from chemicals and safety equipment.
- Dangerous reactions created when mixing chemicals, especially chlorine containing products like bleach.
- Corrosivity to equipment, tools and building material.

The Role of an Auto-Scrubber in a Well-Designed Process

An auto-scrubber is an effective tool that replaces the inefficiencies of a mop and bucket. Some are small enough to clean in tight areas, while others are large enough to ride. Additionally, some facilities may be able to use robotic cleaning solutions that automate auto-scrubber operation. This provides more benefits than traditional auto-scrubbers already offer, including redeployment of employees to more critical cleaning/disinfecting and validation of cleaning performed and consistency of clean.

In operations relying on mop and bucket usage, incorrect use can lead to cross-contamination as soils and dirty mop water are spread around rather than being recovered. Auto-scrubbers provide operators with a continuous fresh source of cleaning solution. They also reduce hazardous slip and falls caused by wet mopping as solution and soils are automatically and quickly recovered.

Auto-Scrubbers: Ideal for cleaning, not sanitizing or disinfecting.

Auto-scrubbers offer an ultra-efficient solution for the first "cleaning" portion of the disinfection process. They often are used incorrectly in the disinfecting process, though. Sanitizers and disinfectants require specific contact times to work effectively. Surfaces must remain wet for a range of 2-10 minutes. Auto-scrubbers are designed to dispense cleaning solutions and vacuum them from the floor in **just a few** seconds. While this amount of time is ideal for protecting against slip and falls, it does not provide the contact time required for disinfecting. Thus, if a disinfectant is put into the machine and used conventionally, the floor is being cleaned but not disinfected.

In order to disinfect with an auto-scrubber, operators can use the double scrubbing technique to ensure that floors remain wet for the proper allotted time. To accomplish this, the operator simply leaves the squeegee in the up position and turns off the vacuum during the first scrubbing pass or removes the squeegee. This prevents immediate recovery of the disinfection solution while it sits on the surface. After the contact time has been met, the operator can then lower the squeegee and turn on the vacuum to recover solution and soils if not allowed to air dry.

Double-scrubbing is an easy technique to use, but does come with a few extra precautions. Machine safety and care are critical, so make sure all of the non-porous surfaces of the machine are

thoroughly cleaned after use. After cleaning, allow enough time for the machine surfaces to fully air dry and store auto-scrubbers in a dry area with squeegee, scrub head and sweep head in the up position.

Explore an Alternative to Detergents and Other Chemicals

If you're wondering about the cost or environmental impact of using detergents or other chemicals in the floor cleaning process, Tennant Company offers cost-effective and environmentally-responsible alternatives, ec-H2O NanoClean® and ec-H2O™. These technologies electrically convert water into an effective cleaning solution that saves money, improves safety and reduces environmental impact* compared to traditional cleaning chemicals and methods.



BENEFITS OF ELECTRICALLY CONVERTED WATER

CLEAN EFFECTIVELY

Scrubbing with ec-H2O NanoClean® and ec-H2O™ effectively removes soil without leaving chemical residues based on third-party and customer testing.

SAVE MONEY

Reduce costs and improve productivity by eliminating purchasing, storage, handling and chemical mixing tasks. With cleaning requirements increasing dramatically, eliminate your additional daily floor detergent costs. Get additional productivity gains by reducing the amount of dump and fill cycles with a reduced solution flow rate.

ENHANCE SAFETY

As you and your staff are asked to expose yourselves to more and more chemicals while combating SARS-CoV-2, use this technology to reduce chemical exposure in your normal cleaning operations. Reduce exposure to chemical fragrances with fragrance-free ec-H2O NanoClean® and ec-H2O™. Confidently clean with technology registered with the NSF for cleaning in food and beverage environments and certified by the National Floor Safety Institute as not impacting floor friction.

REDUCE ENVIRONMENTAL IMPACT

Auto-scrubbers equipped with these technologies use less water so they can scrub up to three times longer between non-productive dump and fill cycles. Also, according to a third-party study by EcoForm*, ec-H2O NanoClean® and ec-H2O™ significantly impact green cleaning operations in seven key categories: energy, CO₂ emissions, ozone, smog, acid, eutrophication, and particulates.

* Based on LCA study by EcoForm™. Visit www.tennantco.com for more information.

Do I Need to Disinfect My Floors?

Ordinarily, facilities like shopping malls, factories and office buildings can maintain clean and healthy environments by regularly cleaning their floors. Floors have been typically referred to as non-critical surfaces that don't commonly come in direct contact with human skin. The spread of COVID-19 creates a unique situation, however. Because the SARS-CoV-2 virus is highly contagious and because it appears to live on hard surfaces for several days, many organizations are taking or asking that the extra step of disinfecting their floors to be completed as more studies are provided regarding the spread of pathogens. Others include this in their protocols based on existing health code or industry standards.

If this is a new step in your SOP, review why this task is being asked. Is this a quick response to try and disinfect all surfaces? Is there an increased concern of COVID-19 in the facility? Do I have the ability to procure enough disinfectant to complete disinfection on floors vs the smaller project tasks? When is there an available time when I can shut down the area where disinfectant can sit on the floor for the required amount of time?

Additional floor cleaning frequency using an auto-scrubber is often a more viable option for facilities looking for an increase in hygiene that don't have a specific reason to disinfect the floor.

Best Practices for Disinfecting

If you are implementing a new protocol, due to the current SARS-CoV-2 contamination concerns, disinfection with an EPA SARS-CoV-2 listed disinfectant, where possible, is best practice. See <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. Review contact time on list for proper time required for SARS-CoV-2.

Make sure the products you're using offer the appropriate efficacy outcomes you desire.

Plan to immediately restrict traffic from disinfected areas using prominent safety signs and take other precautionary safety measures.

Apply disinfectant according to label dilution instructions. Use a procedure that allows the floor surface to remain wet for the required contact time.

Disinfectants are often dispensed through dilution systems. Make sure the dispensing system is properly diluting, per label instructions. Check end concentration frequently.

Review all Safety Data Sheets with staff and users. Review PPE, incompatible materials, hazards to avoid. Different disinfectants may be used in the same facilities and have different requirements.

To learn more: Environmental Protection Agency, [epa.gov](https://www.epa.gov); Center for Disease Control and Prevention, [cdc.gov](https://www.cdc.gov)

Best Practices for Cleaning & Disinfecting Auto-Scrubbers

Cleaning floors may result in contamination of Tennant auto-scrubbers with the virus that causes COVID-19. Tennant recommends routine cleaning and disinfecting of equipment surfaces and parts.

Before selecting a cleaner or disinfectant, review labels to determine if the chemistry is compatible with the auto-scrubber surfaces and parts. Some disinfectants, just like some cleaning products, can corrode metals, plastics and types of rubber.

Thoroughly clean all hard, non-porous surfaces of the machine. After cleaning, allow time for surfaces to completely air dry prior to disinfection.

Thoroughly apply the disinfectant by wiping or spraying and carefully follow contact time and PPE instructions.

If some surfaces cannot be reached via wipe or spray, it may be necessary to disassemble and immerse the parts in disinfectant.

Wipe and rinse equipment with water to remove disinfectant residues from machine, paying specific attention to the scrub deck, squeegees and other areas prone to chemical corrosion in order to reduce the potential for damage to your equipment. Take care not to spray electrical components of the machine.

We want to help you achieve your goals. If you need help building a long-term cleaning plan or if you want near-term insights for managing through the COVID-19 pandemic, we encourage you to contact a Tennant Company cleaning expert.

References:

1. Environmental Protection Agency Product Test Guidelines, OCSPP 810.2000, General Considerations for Testing Public Health Antimicrobial Pesticides, EPA 712-C-17-002, February 2018.
2. Environmental Protection Agency Product Test Guidelines, OCSPP 810.2300, Sanitizers for Use on Hard Surfaces-Efficacy Data Recommendations, EPA 712-C-07-091, September 2012.
3. Environmental Protection Agency Product Test Guidelines, OCSPP 810.2200, Disinfectants for Use on Environmental Surfaces, EPA 712-C-17-004, February 2018.
4. <https://www.mdedge.com/chestphysician/article/136009/healthcare-acquired-infections/hospital-floors-are-overlooked>
5. Environmental Protection Agency, epa.gov; Center for Disease Control and Prevention, cdc.gov