



Protecting Worker Health

Workplace Cleaning for COVID-19

Guidance Document

[aiha.org](https://www.aiha.org)

Sponsored by the AIHA Indoor Environmental Quality Committee

Industrial hygiene has been defined as

“that science and art devoted to the anticipation, recognition, evaluation, and control of those environmental factors or stresses arising in or from the workplace, which may cause sickness, impaired health and well-being, or significant discomfort among workers or among the citizens of the community.”

(Source: OSHA definition of Industrial Hygiene)

COVID-19 Cleaning, Disinfecting, and Safety in NON-HEALTHCARE Workplaces

Critical and essential workplaces operating during this pandemic need to implement procedures to reduce the risk of workers, contractors, vendors, customers, and members of the community becoming infected on their premises. Outside of healthcare and paramedical facilities, the infrastructure and standard practices of infection prevention and control have not been commonplace. Establishing enhanced routine cleaning and disinfection procedures in offices, factories, warehouses, call centers, grocery stores, and other non-healthcare workplaces is a critical step in reducing exposures and infections.

Studies have reported that some people infected with COVID-19 are “silent spreaders,” that is, either asymptomatic or pre-symptomatic, exhibiting no signs of fever, cough, or labored breathing. Employers and industrial hygienists must assume that some workers are likely to come to work while infectious. Enforcing social distancing, establishing administrative controls to minimize worker contact, and mandating the use of personal protective equipment (PPE) are all part of pandemic response. However, keeping indoor work areas clean and hygienic plays a critical part in infection control.



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Some organizations delay responding until an employee is confirmed as infected with SARS-CoV-2, the virus that causes COVID-19. This type of episodic decontamination or deep cleaning upon learning of a confirmed infection is too little, too late. Because it takes time to receive the results of a clinical test, employers will probably not learn of an exposure until days or weeks after it occurred, making episodic deep cleaning inadequate to reduce the risk of contagion exposure. This approach is not commonly recommended by infection control or industrial hygiene professionals.

By borrowing from the principles, procedures, and practices used to proactively prevent the spread of infectious agents in hospitals, industrial hygienists can assist employers in reducing the risk of infection in non-healthcare workplaces and other public places. To minimize the risk of exposure to contagious viral deposits from infected employees, contractors, or vendors, the American Industrial Hygiene Association (AIHA) encourages employers to use the approach of routine enhanced cleaning and disinfection of workplace surfaces and equipment, in combination with other risk mitigation measures to slow the spread of the SARS-CoV-2 virus. This ap-





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proach must include the use of EPA-registered disinfectants that meet the EPA criteria for use against SARS-CoV-2. Cleaning staff must be trained in the safe and effective use of PPE and disinfectants.

Periodic third-party oversight, and confirmation that cleaning and disinfection procedures are being followed, should be part of this program. Until a valid environmental test becomes commercially available to detect infectious SARS-CoV-2 viruses, validation testing of cleaning and disinfection procedures is not recommended. Environmental and occupational health professionals should consider various approaches to assess cleaning and disinfection procedures as they become available, including directly measuring viral RNA or other surrogate methods. As these methods do not differentiate between infectious and inactivated virus, it is important to decide before testing how results will be interpreted when using these methods. Ultimately, interpreting test results, recommending actions to reduce exposure risk, and effectively communicating with stakeholders is the responsibility of the industrial hygienists and occupational health professionals who design and carry out testing strategies.

For non-healthcare settings, consider the following steps to reduce the risk of infection from deposited pathogens on surfaces:

- Establish a team of environmental service technicians and professionals. Ensure they are trained on the proper use and limitations of PPE; personal hygiene protocols; mixing and applying of approved cleaning and disinfecting agents; and are properly supervised to promote ongoing quality control. Seek guidance from a Certified Industrial Hygienist (CIH), Certified Infection Control Professional, Registered Sanitarian, or other qualified public health professional.
- Identify and purchase EPA-registered disinfectants that meet the criteria for use against the SARS-CoV-2 virus and are approved the surfaces on which they will be used. Establish procedures to store, mix, apply, and dispose of any leftover cleaning and disinfection products safely and in accordance with established regulations, including communicating hazards to employees handling the materials. (<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>)
- Frequency of cleaning can depend upon occupant usage patterns, population of the facility, and surfaces that are frequently touched by multiple people. Establish a specific, detailed list of items, surfaces, equipment, and locations to be cleaned and disinfected, and a schedule of how often that should occur. Identify “high-touch” areas that require frequent treatment, as well as any other areas that should be frequently cleaned (such as bathrooms and elevator lobbies).
- Ensure that ALL containers used to measure, store, transport, mix, and apply cleaning agents and disinfectants are properly labeled as to the contents, product name, and concentration if diluted. For example, all spray application bottles must be properly labeled with the product name and end use concentration.



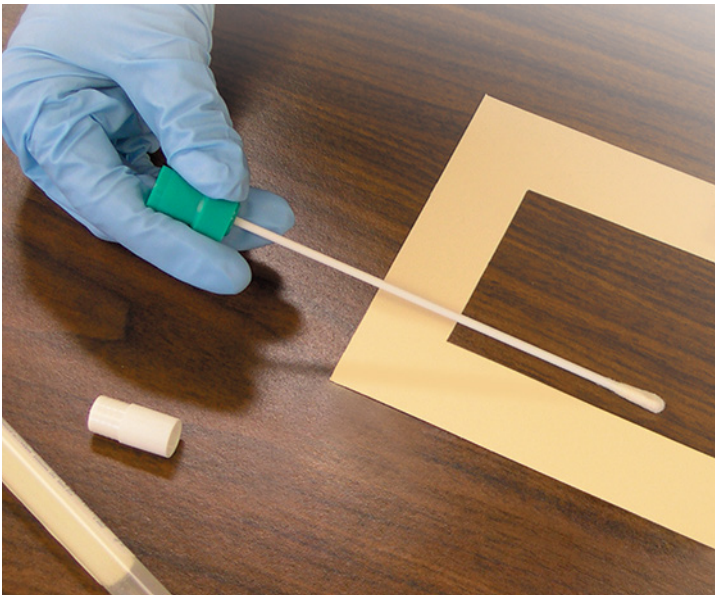


Photo courtesy of SKC

- Environmental testing to verify effectiveness of cleaning and disinfection is not currently, as of April 2020, included in the guidelines published by the Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), or other public health authorities. Bear in mind the following when evaluating indoor surfaces:
 - There are currently no validated, commercially available, environmental test methods specific for infectious SARS-CoV-2 viruses. If a method is developed, guidance or standards for interpreting environmental surface testing results that allow the user to distinguish between acceptable or unacceptable levels of virus on surfaces will be needed.
 - Understand the implications and limitations of using a surrogate or direct indicator for cleaning efficacy. Clearly define criteria for acceptance, and follow-up actions based on sample results, in advance of testing.
 - Develop a hypothesis as part of the verification process. Only perform testing methods capable of assessing that hypothesis.
- Many of those infected with COVID-19 are “silent spreaders.” Testing surfaces can verify their cleanness only until a space is reoccupied and potentially re-contaminated. This is why public health professionals recommend routine, not episodic, cleaning and disinfection for most facilities and buildings.
- Isolate and block off common areas that are no longer being used due to restrictions on gatherings, such as conference rooms, auditoriums, and cafeterias, to minimize the number of surfaces requiring regular cleaning and disinfection.
- For carpeted flooring, apply the following guidance:
 - ONLY use HEPA filtered vacuum cleaners. Unfiltered vacuum cleaners can aerosolize a significant amount of respirable dust, which may carry infectious pathogens.
 - Use hot water injection that continually delivers water above 140°F (60°C) to periodically deep clean carpeting. This is not shampooing or bonnet scrubbing. Cleaning carpet and upholstered furniture is a good first step to an enhanced cleaning and disinfection program. This should ideally be performed after normal work hours, when employees are not present. Application of chemical disinfectants to carpeting should not be performed regularly, and only with EPA registered disinfectants approved for porous or upholstered fabrics.
- Use of foggers for broad application of disinfectants is generally discouraged and should not be a substitute for directly applying the disinfectant onto a surface, because:
 - The ability to obtain sufficient disinfectant concentrations and distributions on surfaces requires calculating the generation rate of the disinfectant used, based upon room volume, air mixing, and other variables that are not often known.



- The US EPA does not recommend fogging applications, or wide area spraying of disinfectants, to control COVID-19. (<https://www.epa.gov/coronavirus/can-i-use-fumigation-or-wide-area-spraying-help-control-covid-19>)
- Risks to individual applicators and nearby persons must be considered and steps to prevent hazardous exposures must be taken.
- Fogging disinfectants in occupied areas or HVAC system ducts poses a health risk to both applicators and building occupants. No current evidence is available on the need, or efficacy, of applying disinfectants to HVAC system ducts as it relates to SARS-CoV-2.
- Fogging disinfectants into a building or its HVAC system can inadvertently activate smoke alarms if measures are not taken to protect them from the aerosol. Fogged disinfectant can enter HVAC system ducts if they are not turned off and the registers sealed.
- Targeted fogging of disinfectants directly onto hard surfaces may be useful after effective cleaning, but depends upon the selected disinfectant, application rates, concentrations, and dwell time.
- Application of either vapor hydrogen peroxide (VHP) or hydrogen peroxide vapor (HPV) is sometimes equated or confused with “fogging.” These precisely calculated disinfection processes are typically limited only to facilities designed or retrofitted for this type of disinfection by properly trained professionals. VHP must be used only in spaces that can be made airtight, to control the application and limit the risk to personnel exposure. This type of disinfection is traditionally limited to rooms in hospitals, laboratories, or other special use areas.



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- Ensure adequate ventilation is provided, both during and after application of disinfectants, by either hand-wiping, spray applying, or fogging. Read and follow the EPA Approved Product Label and comply with ventilation requirements. If no guidance is provided, then consult an industrial hygienist.
- Common use kitchens or pantries should be addressed separately, and ONLY cleaners and disinfectants approved for food preparation surfaces should be used.

References and Links

<https://apic.org/resources/topic-specific-infection-prevention/environmental-services/>

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

<https://www.epa.gov/coronavirus/can-i-use-fumigation-or-wide-area-spraying-help-control-covid-19>



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Founded in 1939, the American Industrial Hygiene Association® (AIHA®) is one of the largest international associations serving the needs of industrial/occupational hygiene professionals practicing in industry, government, labor, academic institutions, and independent organizations.

For more information, visit www.AIHA.org

About Occupational Health and Safety Professionals

Occupational health and safety (OHS) professionals (also known as industrial hygienists) practice the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers' injury or illness. Through a continuous improvement cycle of planning, doing, checking and acting, OHS professionals make sure workplaces are healthy and safe.

AIHA® Resources

Get additional resources at AIHA's Coronavirus Outbreak Resource Center. https://www.aiha.org/public-resources/consumer-resources/coronavirus_outbreak_resources

Find a qualified industrial hygiene and OEHS professionals near you in our Consultants Listing. <https://www.aiha.org/consultants-directory>.

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