

CORONAVIRUS AROUND US:

STABILIZING CRITICAL SURFACES AND ENVIRONMENTS



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Government mandates related to the coronavirus pandemic (COVID-19) are affecting global businesses and industries as we have never experienced before. The impact of this pandemic on businesses and insurers is still largely unknown, but it is likely to be a major concern for months and years to come.

For essential and critical businesses still in operation, such as medical facilities, pharmaceutical, food processing, shipping, transportation, and more, it is crucial for them to be able to immediately clean surfaces and validate the cleanliness. However, a virus, such as COVID-19, behaves very differently than the environmental hazards we are used to working around, such as mold, asbestos, and lead. In this paper, we outline available information related to the proper cleaning, testing, and validation of critical surfaces and environments.

Highlights

- What we know about the coronavirus, COVID-19
- Keeping surfaces and environments clean
- Testing surfaces and environments
- Validating that the area is clean

Cleaning

Keeping a clean indoor environment is one way you can mitigate a loss before it even occurs. However, prior practices of janitorial cleaning will not likely suffice during this active pandemic or in the days, weeks and months that follow. Environmental professionals can help you or your client tailor a cleaning and disinfection program specific to the needs of the business or facility. Below are a few pointers for helping keep indoor spaces clean:



- Proper employee education and training are vital at this time. Training guidelines can be found [here](#) for a variety of facilities.
- Disinfection does not equal clean; therefore, the space needs to be cleaned first and then disinfected.
- Frequently touched areas are to be cleaned and disinfected often.
- High-risk locations require cleaning with soap and water and then disinfecting on a regular schedule. We refer you to the [EPA list of products, List N: Disinfectants for Use Against SARS-CoV-2](#).
- Cleaning should be completed by trained individuals who understand the proper disposal of waste, including Personal Protective Equipment (PPE).

- Fogging techniques are being employed using Ultra Low Volume (ULV) and Ultra Low Dosage (ULD). This terminology refers to the generated droplet particle size. Recently fogging delivery systems have been utilized in various industrial and commercial environments to provide infectious disease control. The occupational and environmental health industry is evaluating the full effectiveness and acceptance of this technology for disinfection of COVID-19.

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- Follow local and state cleanliness guidelines as appropriate.
- If you have questions about the efficacy of your standard cleaning and disinfection policy and how it applies in this new environment, consider contacting an infection control specialist who can walk you through the process and determine if additional measures should be taken:
 - » Cleaning protocols may require access to the facility or affected area to evaluate and decide on best practices for the facility. Consideration of building, equipment or system type, in addition to best practices for the proper cleaning of porous and non-porous surfaces, will contribute to the development of appropriate protocols.
 - » If you must access or come into contact with an infected room, building or system, it is imperative you proceed safely with proper PPE equipment. Infection control specialists can assist you with coordination and logistics, as well as establishing cleaning and disinfection protocols for infectious diseases.



Testing

Perhaps you are looking for testing validation to ensure that the virus is not at your facility. Unfortunately, an environmental test does not exist that can prove a negative for an entire facility. At best, only the surface tested can be shown to be negative for an environmental contaminant, whether it be lead, dust, mold, or a virus. However, as far as confirmation of cleanliness or verification of disinfection:

- There are laboratories that can provide environmental surface swabs for SARS CoV-2 by Polymerase chain reaction (PCR). It is important to note that this test provides verification of the presence of coronavirus but will not indicate its viability (alive or dead). The typical laboratory turnaround time after sample collection is 24 hours to 7 days, depending on the laboratory and the need for rush analysis.
- The surface testing available for the coronavirus is not widely available at this time. The testing, validation and methodology for surface testing are just rolling out. As one can imagine, laboratories will be turning samples around as promptly as they can.
- The CDC states that if someone is contaminated and/or infected, immediate cleaning and disinfection in that area is recommended. Testing may not be necessary to dictate the necessity to roll out cleaning and disinfection protocols but may be used to show diligence in minimizing future risk.

Validation

The industry is rapidly coming together in conjunction with scientists and field experts to determine the best methods for on-site clearance and validation that a space has been adequately cleaned. While there is no available on-site rapid virus clearance testing for COVID-19, it is essential to understand that a properly executed and monitored cleaning and disinfection protocol will render a space as safe to use.

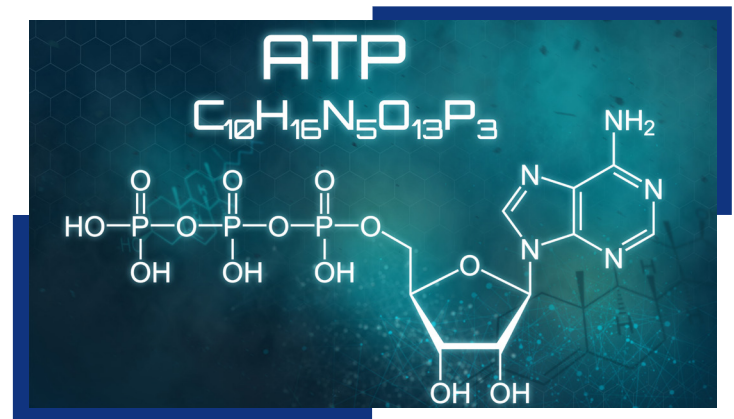
A proper disinfection protocol should outline the following:

- Cleaning procedures for various surfaces;
- Frequency of the cleaning and disinfection activities;
- Products to be used, and proper concentrations adhered to;
- Verification that cleaning is completed before the disinfection steps;
- Products are applied with the appropriate surface contact time since a disinfectant's kill time varies by product to eliminate bacteria and viruses; and,
- Verification of a cleaning and disinfection protocol happens with proper direct project oversight.

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Some methods beyond the COVID-19 surface testing are currently being employed that Envista can assist with:

- **Using a fluorescent powder or gel to provide semi-quantitative proof of cleaning.** The fluorescent material is applied to surfaces within the affected area before cleaning. Once the cleaning has occurred, the infectious control specialist returns with a UV light to verify that marked areas have been cleaned during the process. This method will not verify disinfection is complete, but only the associated cleaning efforts.
- **Tracing for microbiological materials, such as bacteria or enzymes, in the subject space.** This is a fairly common method, as detection or non-detection of bacteria found in saliva and skin, for example, can aid in determining if the area is clean. Using Adenosine Triphosphate (ATP) as a surrogate for a virus, because it represents bio-organisms, is one method. The use of ATP is fairly common; for example, it is used in the food & beverage industry ^{i,ii}. Detection of ATP, found in many organisms and biofilm, can represent biological loading on a surface. Coronavirus does not produce ATP, so it does not represent it directly. It can aid in determining if the space has been cleaned. If the biomass is removed from the space, then you have confidence that the virus is cleared from the space.
- **Documenting of the cleaning process or adherence to the provided protocol.**



Summary

Essential businesses are facing strict measures for keeping their sites clean and free of virus, due to the unpredictable and incredible environmental hazards of COVID-19. COVID-19 behaves very differently than the environmental hazards we are used to, which is why it is essential to adhere to the proper cleaning and disinfecting protocols, test to confirm cleanliness and disinfection, and validate adequate cleaning.

Envista Forensics has tackled some of the most difficult challenges that the commercial property insurance industry has faced over the years, and this global pandemic undoubtedly presents multiple potential exposures for our clients. Envista continues to stay apprised of the latest technical news and protocols associated with COVID-19. We have extensive teams of experts, from environmental, industrial hygiene, food and agriculture to healthcare, hospitality, manufacturing and industrial systems ready to assist with the wide variety of claims that we expect to see once mandated quarantine and social distancing protocols are lifted. Until then, we are ready to answer your questions on the evolving science and testing availability.

i Ogden, K.: Practical experiences of hygiene control using ATP bioluminescence. Journal of the Institute of Brewing 99(5): 389-393 (1993)

ii Aycicek, H., UIOguz, and K. Karci: Comparison of results of ATP bioluminescence and traditional hygiene swabbing methods for the determination of surface cleanliness at hospital kitchen. International Journal of Hygiene and Environmental Health 209(2): 203-206 (2006)