COVID-19 guidelines for disinfecting laboratory equipment and surfaces

This guidance outlines the recommendations for cleaning and disinfecting laboratory work surfaces and equipment. Email ASU Environmental Health and Safety for additional assistance.

Considerations

Each lab should use items of approved disinfectants from the list below. Labs also should consider developing lab-specific disinfection procedures that all personnel is trained to follow. A disinfection log is included below.

Social distancing guidelines must be observed by all personnel when cleaning and disinfecting lab surfaces. Review the Safe distancing guidelines for laboratories for more information. Consider creating a sign-up system for shared equipment with distancing strategies. Face coverings or surgical masks are strongly encouraged when social distancing is challenging to maintain.

Approved disinfectants

The following disinfectants are approved for use against SARS-CoV-2, the virus that causes COVID-19. You may place orders for these items through ASU Materials Management.

- 70% isopropanol is preferred when available.
- 70% ethanol also may be used.

Caution: Isopropanol and ethanol vapors may be irritating. **Do not** use ethanol, isopropanol or other flammable solutions in the vicinity of electrical outlets, hot surfaces or open flames.

When 70% isopropanol or ethanol is not available, these additional disinfectants are approved for use:

- A 2% bleach solution is recommended by the U.S. Centers for Disease Control and Prevention.
    - To make a bleach solution, mix five tablespoons of commonly available bleach per gallon of water, or four teaspoons per quart of water.
    - Surfaces must remain wet for at least one minute. Bleach solutions must be prepared fresh daily.
    - **Caution**: Bleach may be irritating and should not be used extensively in areas with poor ventilation. **Do not** mix bleach with ethanol or other cleaners as it may cause harmful byproducts. Bleach leaves a film after drying and can cause corrosion on metal surfaces. Surfaces should be wiped down with clean water or 70% ethanol following disinfection with bleach.
- Additional disinfectants include BNC-15, CaviCide, Microcide, Protexus Electrostatic Sanitizing Spray with PURTABS, TB-Cide Quat and Virex.
- Labs working with SARS-CoV-2 must follow IBC-approved SOPs, which may require a 10% bleach solution.
- Other disinfectants can be found on the Environmental Protection Agency's list of approved disinfectants against SARS-CoV-2.

Face coverings

- Use cloth masks or surgical masks when possible, it is highly encouraged.
- Wear cloth masks or surgical masks when around others, and you cannot practice social distancing.

Personal protective equipment

Personnel who perform cleaning and disinfection must use the following personal protective equipment.

- Eye protection, such as goggles or safety glasses.
- Face shields are encouraged if available as long as eye protection is worn underneath.
- Gloves are compatible with cleaning and disinfecting solutions.
- Lab coat or disposable gown.

Caution: When cleaning and disinfecting surfaces near highly flammable or pyrophoric materials, verify face coverings and PPE are made of flame-resistant materials or natural fibers like cotton. Synthetic materials can melt onto the skin.

All disposable PPE, such as nitrile gloves or gowns, must be discarded in regular waste for final disposal.

- After conducting cleaning and disinfecting routines, cloth face coverings should be changed out and stored in a sealed plastic bag until washed with regular laundry at home. Disposable face masks can be stored for reuse if they remain in good condition.
- Cloth laboratory coats should be sent for laundering if there are visible contaminants.
- Eye protection and face shields should be cleaned according to the manufacturer's recommendations.

Work surfaces and equipment

Work surfaces and equipment includes counters, doors, lab benches, as well as other hard or non-porous surfaces, such as composite materials, glass, metal or plastic.

- A disinfection log is included below. Post the log in the lab and next to each piece of shared equipment.
- All detergent or disinfectant solutions must be prepared in a clean, dry container except when replenishing a container already in use.
- Always wear the recommended PPE listed above.
- Before cleaning and disinfecting laboratory equipment or instruments, always review and follow the manufacturer's recommendations.
- Clean and disinfect all lab surfaces at least twice daily.
- Clean the surfaces of dust, smudges and debris using regular housekeeping protocols with water and detergents, then use disinfectants.
- Disposable wipes may be placed into the regular trash.
- **Do not** use spray bottles to apply disinfectant when cleaning surfaces. Spraying surfaces may cause aerosols. If wipes are not available, apply 70% isopropanol to a cloth while avoiding saturation or dripping.

- Equipment that is shared by multiple people or lab groups should be cleaned and disinfected before and after each use.
- Hand sanitizer of at least 60% alcohol can be used for glove changes but is not a substitute for proper handwashing. Always completely cover hands with hand sanitizer and allow to air dry.
- Keep a log of locations and surfaces that are cleaned. It is a best practice to include the date, time and cleaner's initials.
- More frequent cleaning of highly-touched surfaces is recommended. These surfaces include countertops, desks, doorknobs, handles, keyboards, light switches, phones, sinks and tables.
- Reusable cleaning cloths in BSL2 or higher labs must be autoclaved before being sent for laundering after standard protocols.
- Reusable cloths used in non-BSL2 or higher labs must be washed immediately or stored in a sealed plastic bag until washed.
- Wash hands and forearms thoroughly for at least 20 seconds with soap and warm water after removing PPE.

Delicate surfaces or electronics

- A disinfection log is included below. Post the log in the lab and next to each piece of shared equipment.
- Always wear the recommended PPE listed above.
- Avoid spraying disinfectants directly onto surfaces and potentially getting liquid into equipment openings.
- Consider the use of 70% ethanol or 70-to-80% isopropyl alcohol on a soft cloth or pre-moistened wipes. Avoid using harsher disinfectants like bleach.
- Disposable wipes may be placed into the regular trash.
- For delicate surfaces, such as computers, electronics, instruments, keyboards, microscopes, screens and tablets, consider the use of wipeable covers when feasible.
- Gently wipe the surface until it is visibly wet. Allow it to evaporate.
- Hand sanitizer of at least 60% alcohol can be used for glove changes but is not a substitute for proper handwashing. Always completely cover hands with hand sanitizer and allow to air dry.
- Keep a log of locations and surfaces that are cleaned. It is a best practice to include the date, time and cleaner's initials.
- Power off all devices. Unplug all external cables, cords, devices and power sources.
- Reusable cloths must be stored in a sealed plastic bag until washed.
- Shared computers, equipment and keyboards should be disinfected after every user.
- Wash hands and forearms thoroughly for at least 20 seconds with soap and warm water after removing PPE.

Other considerations

- Be sure to label all workplace containers with at least the chemical name and appropriate hazard warnings.
- Contact equipment manufacturers for advice on cleaning products and disinfectants to use on centrifuges, microscopes and other sensitive lab equipment that may be damaged by harsh cleaners.
- Laboratory equipment that requires lubrication, such as centrifuge rotors, should be maintained following manufacturer guidelines using equipment-specific lubricants.

Visit the COVID-19 resources page for more information.

Arizona State University

Lab disinfection log

Laboratory personnel must clean and disinfect surfaces at least twice daily and consider more frequent cleaning of high-touch surfaces. Common or shared lab equipment must be cleaned and disinfected before and after each use. Personnel must ensure that the surfaces are damp with disinfectant but do not saturate or drip into equipment. The wipes or cloths should remain moist throughout the process. Allow surfaces to air dry.

Equipment name or lab location: _____

Disinfection dates and times: _____

Date	Time	Initials	Date	Time	Initials	Date	Time	Initials

Questions? Email Environmental Health and Safety or call 480-965-1823.

Revised 05/26/2020