

Cleaning Procedures for Laboratories in Response to COVID-19

Revised November 2020

Audience: Principle Investigators, Lab Members

*The purpose of this document is to provide guidance for self-cleaning by researchers of laboratory spaces, including spaces in which a person who may have COVID-19 has been present. This cleaning standard operating procedure (SOP) is designed to disinfect touch surfaces, reduce generation of aerosols and **empower you to safely disinfect your entire laboratory space**. If you have questions or concerns, please reach out to biosafety@ucmerced.edu.*

Increase Regular Cleaning

Increasing the standard lab cleaning regimen to at least daily can greatly reduce the risk of surface transmission of microorganisms. This should be done regardless of suspected or confirmed COVID-19 cases.

Personal Protective Equipment (PPE):

- Lab Coat
- Disposable Gloves
- Face Covering (face mask/N-95)
- Eye Protection [Safety Glasses, etc.]

Clean and disinfect high touch surfaces on a daily basis including but not limited to:

- Benchtops
- Doorknobs/handles & Door frames
- Lights Switch Plates
- Phones
- Shared equipment surfaces (pipette, centrifuge, PCR, microwave, and etc.)
- Sink/faucet
- Refrigerator handle
- Computer Keyboard and Mouse
- Tables and Chairs
- Railings
- Remote Controls
- Media/Reagent Bottles
- Clean Areas

Wash areas with soap and water for items that are heavily soiled, and follow with a disinfectant according to the manufacturer's instructions.

For disinfecting non-porous surfaces, **10% household bleach or alcohol solutions of at least 70%** are known to be effective. Allow the disinfectant to sit wet on the surface for the **indicated contact time** (10 minutes for bleach and 70% alcohol), then wipe or air dry. If using bleach to disinfect, a follow up wipe with water is recommended to prevent excessive corrosion from bleach. Be sure to follow the manufacturer's instructions for proper disinfection and safe handling. Use disinfectants in well-ventilated areas. For approved disinfectants effective against coronavirus, please visit: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Dispose of cleaning supplies and disposable PPE in a red medical waste bin. If you have questions about disposal, please reach out to biosafety@ucmerced.edu.

Wash your hands with soap and water for at least 20 seconds.

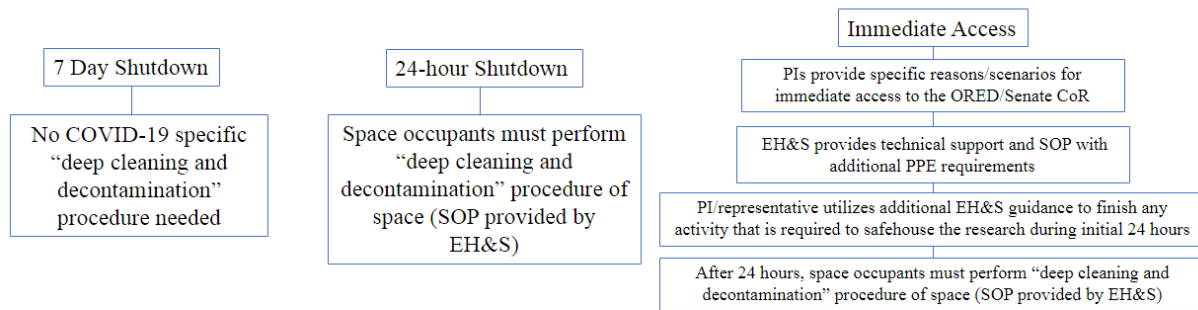
Decontamination Procedure

Disinfecting touch surfaces is an important step in limiting the spread of COVID-19. Disinfectants found on the [EPA List N: Disinfectants for Coronavirus \(COVID-19\)](#) must be used for disinfection of spaces in which a person with suspected or confirmed COVID-19 has been present. Due to the sensitive nature of research materials and equipment, lab personnel will manage the disinfection of the laboratory spaces.

COVID-19 Decontamination Plan

COVID-19 Positive Case Reported in a Laboratory/Research Space

- Step 1:** EOC Coordinator notifies EH&S POC and Facilities POC
- Step 2:** EH&S and Facilities determines the safety of the space
- Step 3:** Facilities/EH&S informs space occupants (PIs) about restricted access
- Step 4:** PIs make a decision:



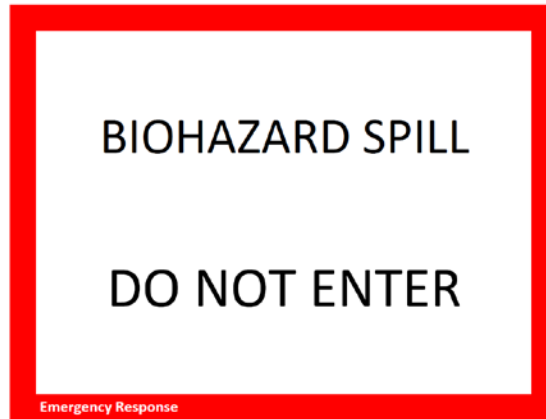
Step 5: PIs/Occupants re-occupy space after step 5 decision carried out (as per SOP)

POC= Point of Contact | EOC= Emergency Operations Center | SOP= Standard Operating Procedure | ORED= Office of Research and Economic Development | CoR= Committee on Research

Note: Except for providing technical assistance, EH&S will not participate or provide manpower or logistics to any deep cleaning/decontamination process at any space.

Prior to Disinfection: Follow the steps in the above Decontamination Plan when a suspected or confirmed COVID-19 case is reported. The PI must decide which option best fits the needs of their research. **During the shutdown time, no personnel should enter the space.** Hang signage (see example below) if necessary and secure the perimeter to the best of your ability. This isolation will allow any generated droplets/aerosols to settle or be removed from the air. Laboratory airflow is designed to help remove airborne contaminants, and the best practice is to allow this system time to work.

If the suspected/confirmed individual OR those determined to be “close contacts” by the COVID Response Center have not been present in the space in the last 24 hours, the space does not need to be shut down, however it should be deep cleaned immediately. If these individuals have not been present for 7 days, no shutdown or deep cleaning is necessary, standard cleaning should continue.



Sample Signage to Isolate Lab Area

Personal Protective Equipment (PPE):

- Disposable Gown or Lab Coat (white cotton or striped Barrier coats only, NO BLUE FR LAB COATS)
- Disposable Gloves
- Face covering/mask
- Eye Protection [Safety Glasses, etc.]

Scope of Disinfection: Identify all areas where the individual has been present. This includes **all touched surfaces** in clean areas (marked areas inside labs in which eating and drinking is permitted), and any lab surfaces with which the person had direct contact (lab benches, chairs, chemical cabinets, doorknobs, fume hoods, etc.). It is **not necessary to disinfect floors unless visible or suspected contamination is present. Use professional judgement** with regards to disinfecting equipment which may need disinfection based on whether the individual was wearing PPE (for example, the entire work surface of a biosafety cabinet may not require decontamination, but the side of the glass sash exposed to the person and the first 6 inches of the work surface inside the cabinet may require it). When in doubt, disinfect.

Check for Compatibility: Before selecting a disinfectant, determine what materials or equipment are in the lab that could be incompatible with some disinfectants. For example, bleach solutions may not be compatible with some equipment or may require a secondary wipe-down.

Preparing the Lab: Dispose of any absorbent pads or other disposable porous materials commonly used on the benchtops. All contents of benchtop waste containers should be discarded in the appropriate waste stream. Any cardboard that the individual may have come in contact with should be disposed of as well. No active research should be conducted while the lab is being disinfected.

Disinfection: After donning PPE, enter the area to begin disinfection. Use **one** of the following disinfectants:

1. A freshly prepared solution of 10% household bleach.
2. An EPA-certified disinfectant such as a quaternary ammonium [Lysol, RX 44, etc.], hydrogen peroxide [Spore Klenz, etc.] or iodophore-based [Wescodyne, etc.] solution suitable for routine surface disinfection. You may also use wipe-based disinfectants such as Clorox wipes [quaternary

ammonium] or Cavicide. A full list of EPA-registered disinfectants can be found [here](#).

3. A solution of 70% ethanol.

Apply the disinfectant to the surface by wiping, spraying, or applying the solution to a paper towel and wiping it onto the surface.

NOTE: If the surface is **visibly contaminated or wet with possible contaminants**, place absorbent material (paper towels, or a disinfectant wipe) directly over the contamination and apply disinfectant. Wipe to remove contamination and dispose of the absorbent material as indicated under **Disposal** (below), and disinfect the surface again. This method reduces possible aerosol generation during the spraying of surfaces.

If there are potentially **sharp materials** present in the contamination, these should be removed using no-touch means (with tongs, forceps, etc.) and placed in a red biohazardous sharps container.

The surface must remain wet for the contact time indicated on the disinfectant manufacturer's instructions. This is variable based on the product, generally from 4 minutes for quaternary ammonium wipes, to 10 minutes for spray compounds. Some Cavicide wipe products have a contact time of 1 minute, but most are longer. Always read the label of the product used. **Household bleach and 70% ethanol both require a contact time of 10 minutes.** If the surface dries, reapply the solution. As 70% ethanol is very volatile and dries quickly, it may be more suitable as a secondary cleaner following a 10-minute application of 10% bleach. This will remove corrosive residue from the surface.

Disposal: Dispose of contaminated cleaning products (paper towels, wipes, etc.) in a **labeled biohazard bin lined with labeled red biohazard bags** in accordance with campus procedure for biohazardous/medical waste disposal. If the laboratory does not generate medical waste, **indicate this to the Emergency Operations Center when you first report** the possible case of contamination. The EOC will coordinate with EH&S to provide you with an appropriate bin and bags.

Remove PPE: Remove PPE and dispose of disposable PPE in the biohazard waste bin. Make certain to safely **doff your PPE without contaminating yourself.**

Gloves: Using a gloved hand, grasp the wrist area of the other gloved hand and peel off the glove, taking care to not touch bare skin. Hold the removed glove in the still-gloved hand, balling it into the palm. Slide a finger of the ungloved hand under the remaining glove at the wrist and peel off the second glove over first glove. Discard in the designated biohazard waste container. Wash your hands in a laboratory sink with soap and water.

Eye Protection: Remove safety glasses, wipe with disinfectant and then wash with soap and water to remove any chemical residue.

Lab Coat/Disposable Gown: Unfasten the gown ties or unsnap/unbutton the lab coat, taking care the outside of the coat and sleeves don't contact your body. Pull the gown or coat away from your neck and shoulders, touching the inside of gown or coat only. Turn the gown or coat inside out. **Discard disposable gowns in a biohazardous/medical waste container.**

For reusable lab coats, decontaminate the lab coat using one of the methods below. If you do not have a secondary lab coat available, a loaner of appropriate size will be provided to you through the PPE office.

1. Place the lab coat (standard white cotton polyester or barrier striped coat) in a **clear plastic** autoclave bag (NOT a red bag) or a sterilization sleeve, and autoclave at **121 degrees Celsius, 15 psi, for 30 minutes (gravimetric cycle with 30min steam cycle and 5min drying cycle) or for 4 minutes in a prevacuum sterilizer at 132 degrees Celsius (4 minute exposure, 15 minute exhaust)**. If you do not have access to any autoclave bags or sterilization pouches, wrap the lab coat in aluminum foil, place the lab coat in a tray and add a second tray to the autoclave containing water (not the same tray). Remove the coat and allow it to dry overnight. As textiles are susceptible to ignition or can otherwise be compromised by excessive heat, use shorter drying cycles when autoclaving your coats in gravimetric autoclaves.
 - a. **Do not autoclave your lab coat if it is contaminated with household bleach or other chemicals.** In the case of bleach, allow the bleach to remain on the coat for a minimum of 10 minutes, rinse the contaminated sections and allow to air dry before autoclaving. If your lab coat is grossly contaminated with chemicals, seal it in a container and submit it as chemical waste.
2. If you do not have access to an autoclave AND your reusable coat is a standard white cotton-polyester coat, you may soak your lab coat in a **solution of 10% bleach for a minimum of 30 minutes**. Make sure the bleach soaks the coat entirely and all of the coat is immersed. Remove the coat and allow it to dry overnight. If campus laundry services are active, submit the coat for laundering.

AFTER DISINFECTION AND PPE REMOVAL, WASH YOUR HANDS AND WRISTS WITH SOAP AND WATER FOR AT LEAST 20 SECONDS.

References:

Center for Disease Control and Prevention. (2020) *Disinfection and Sterilization*, Retrieved April 2, 2020, [<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html>].

Center for Disease Control and Prevention. (2020) *Steam Sterilization*, Retrieved April 2, 2020, [<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/sterilization/steam.html>].

Medline. (2020) *SURGICAL – Laundering Recommendations*.

UC Davis. (2020) *Personal Protective Equipment (PPE) FAQs*, Retrieved April 2, 2020, [<https://safetyservices.ucdavis.edu/faq/personal-protective-equipment-ppe-faqs>]

California Department of Public Health. (2020) , Retrieved 03/19/2020, [<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Guidance.aspx>]

Cal/OSHA Aerosol Transmissible Diseases Standard (title 8 section 5199) [<https://www.dir.ca.gov/title8/5199.html>]

Cal/OSHA Interim Guidelines for General Industry on 2019 Novel Coronavirus Disease (COVID-19) [<https://www.dir.ca.gov/dosh/coronavirus/General-Industry.html>]