

LABORATORY CLEANING AND DISINFECTION

SCOPE AND INTRODUCTION

This SOP is designed to provide guidance for *environmental surface* cleaning and disinfection of laboratories at UNL and affiliated campuses. Regular disinfection is required in any laboratory handling biohazardous agents. Regular disinfection is also important in other laboratories to reduce the risk of community-acquired disease (e.g., common cold, flu, staphylococcus, etc.). Reducing risk of contact exposure to infectious agents through routine cleaning and disinfection is an important part of regular laboratory maintenance.

Infectious agents can be effectively inactivated if the correct disinfectant is used. The specific disinfectant to be used by workers in laboratories handling biohazardous agents must be specified in the written protocol that is reviewed by the Institutional Biosafety Committee (IBC). The Environmental Protection Agency (EPA) maintains a list of registered disinfectants. This list is available at: <https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>. The EPA updates the list periodically to reflect label changes, cancellations, and transfers of product registrations. More information regarding disinfectants is provided in the EHS SOP, ***Chemical Disinfectants for Biohazardous Materials***.

- **Cleaning** refers to the removal of dirt and impurities, including germs, from surfaces. Cleaning alone does not kill germs. But by removing the germs, it decreases their number and therefore any risk of spreading infection. Cleaning is achieved with soap and water.
- **Disinfecting** works by using chemicals, for example EPA-registered disinfectants, to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs. But killing germs remaining on a surface after cleaning further reduces any risk of spreading infection.



DO NOT use the laboratory emergency spill kit for routine cleaning and disinfection.

GENERAL CONSIDERATIONS

- Prepare the workplace to facilitate cleaning and disinfection. For example, use plastic keyboard covers for shared computers, and disposable plastic clings over touch screens.
- Visibly soiled surfaces must be cleaned prior to disinfection.
- Disinfectants have a finite shelf life. Do not use expired disinfectants.

- Disinfectants present health and physical hazards. Read and adhere to all precautions and instructions (including proper use concentration) in the manufacturer's Safety Data Sheet (SDS) and label.



Wear appropriate PPE as recommended in the SDS or label, which typically includes lab coat or gown, eye protection/face-shield, and chemical-resistant disposable gloves.

- Disinfectant efficacy depends on proper contact time to achieve adequate kill time. This varies between disinfectants. Ensure proper contact time during use.
- Pause lab operations in the target area during cleaning/disinfection.
- Use damp cleaning methods. **Do not** clean with dry dusting or sweeping as this may create airborne particles.
- Clean from least to most dirty areas. Change mop heads, rags, and similar items frequently during the cleaning/disinfection process. Consider using disposable cleaning items.
- Use a double-bucket method when rinsing is necessary (one bucket for cleaning/disinfectant solution, one for rinsing). Some disinfectants are corrosive or otherwise damaging to certain surfaces and will require rinsing after the appropriate contact time has been achieved.
- Clean, disinfect, and dry non-disposable equipment at the end of each work shift and when known to be contaminated. When risk of community acquired infection is high, clean and disinfect shared spaces/items after use and before sharing with others. Work surfaces (e.g., biosafety cabinets, lab benches, etc.) and **high-touch** surfaces should be cleaned and disinfected. Examples include:
 - Door, appliance, and cabinet handles;
 - Light switches;
 - Benchtops;
 - Desks;
 - Chairs/seats;
 - Telephones;
 - Computers, screens, keyboards, and other analytical equipment (e.g., centrifuge lids, biosafety cabinets, fume hoods, incubators, etc.);
 - Reagent and other containers, pipettors, and other shared equipment/devices;
 - Hand-washing sinks and handles.
- Wash hands thoroughly after completing cleaning or disinfection and after removing protective gloves.
- **Do not** mix disinfectants with other chemicals as toxic fumes may be generated.

CLEANING WITH DETERGENT AND WATER

- Use warm water and properly diluted detergent (e.g., dish soap) to clean all benchtops, cabinets, appliance handles, lab chairs, door handles, and other non-porous surfaces.
- Consult owner's manual for guidance on cleaning/disinfecting computer screens, and like items. Often, a pre-wetted disposable alcohol wipe is appropriate.
- Use slow, deliberate motions when cleaning. Avoid aggressive scrubbing that may cause splashing or airborne particles.
- Following detergent use, rinse with a clean wet cloth or sponge to remove detergent residue and allow to air dry.
- During cleaning, make note of any damaged surfaces and report them to BSM or the facility manager as soon as possible.
- To reduce the risk of electric shock, **DO NOT** use a wet sponge, cloth, or mop on electrical outlets or electrical cords. Light switches should be carefully cleaned so not to wet the internal electrical components.

DISINFECTION

Use all disinfectants according to manufacturer's instructions. Proper disinfection procedure should include:

- Recommended dilution of disinfectant;
- Liberal application with clean cloth, sponge, or hand mop;
- Sufficient surface contact time as indicated by manufacturer;
- Allow to air dry.

AFTER CLEANING AND DISINFECTION

- Promptly place used disposable cleaning/disinfection materials and PPE in a trash receptacle.
- Unused detergent, disinfectant, and rinse solutions may be disposed of down the drain followed by copious amounts of tap water.
- Ensure all areas have dried prior to resuming normal lab operations.

ADDITIONAL RESOURCES

- **Centers for Disease Control and Prevention:** www.cdc.gov
- **Environmental Protection Agency:** www.epa.gov