Lab Cleaning and Disinfection
COVID-19 Guidance

This document provides laboratory cleaning /disinfection guidance for COVID-19 pandemic response.

The virus is primarily spread:

- Between people who are in close contact with one another (within 2 meters).
- Through respiratory droplets produced when an infected person coughs, sneezes, or talks.
- When droplets land in the mouths or noses of people who are nearby or are inhaled into the lungs.
- When someone has touched a surface or object contaminated with the virus and then touches their own mouth, nose, or eyes. This is not thought to be the main way the virus spreads.

1. Cleaning and Disinfection – Responsibilities

1.1 Facilities Custodial Department

The Facilities' Custodial Department will continue to provide basic routine cleaning service levels including:

- Bathrooms – cleaned daily and ensure adequately stocked at all times. Currently there are designated bathrooms to which coverage is provided.
- Public Spaces/Lounges – cleaned daily
- Classrooms – cleaned daily
- Labs – cleaned daily with focus on floors and garbage
- Private Offices – cleaned once a week
- Libraries – cleaned daily
- Clinics – cleaned daily

In addition, workflow will be administered such that enhanced service will be provided including:

- Bathrooms/Showers – high traffic – cleaned 2-3 times per shift with focus on high touch surfaces
- Public Spaces – cleaned 2-3 times per shift with focus on high touch surfaces
- Entrances – cleaned 2-3 times per shift with focus on doorknobs, glass
- High touch surfaces – elevators, handrails, water fountains, vending machines, furniture, etc.

1.2 Lab Personnel

Lab personnel are responsible for cleaning the surfaces, tools or equipment, touchpoints, and anything that is shared with other personnel in the laboratories and offices. See Approved Disinfectants below for products and instructions.

2. Cleaning and Disinfection Requirements

2.1 Labs

Shared equipment in the lab must be disinfected **before and after** each use. Label or place a sign/disinfectant log near the equipment with a reminder to do this.

Place disinfectant and wipes near the equipment. Keep a small trash can nearby for disposal of the wipes).

High touch surfaces in the lab must be disinfected, at minimum, at the **start of and halfway through the workday**. A **Disinfectant Log** is provided for this purpose.

Examples of high touch surfaces in the lab are:

Benchtops	Drawer and cabinet handles	Hand tools
Equipment handles and latches	Bin and water incubator lids	Faucet handles and sprayer grips
Equipment controls and touchpads	Outsides of shared chemical bottles and caps	Micro-pipettors and other shared tools
Baskets, bins, trays, etc.	Chair backs and arm rests	Pens, whiteboard markers, etc.
Door handles/knobs in the lab	Light switches	Hood sashes and airfoils

2.2 Equipment corridors and shared equipment spaces

Shared facilities and equipment, including fume hoods and biosafety cabinets, procedure rooms, instruments, and instrument/resource facilities, will require coordination with other lab groups. A sign-up sheet or reservation system should be considered for managing this.

Disinfect equipment **before** and **after** each use. This includes all touchable surfaces. Place a spray bottle with disinfectant and wipes near the equipment.

2.3 Deliveries

Discard the packing materials and wash your hands immediately after opening packages.

2.4 Offices

Shared office spaces must be cleaned by the occupants. Disinfect any shared office equipment and supplies **before** and **after** each use.

Disinfect touchable surfaces in your personal workspace **twice per day.**

3. Approved Disinfectants

3.1 Health Canada Approved Disinfectants

Common disinfectants include bleach solutions, quaternary ammonium (QUAT), alcohol (70%) and hydrogen peroxide. Some disinfectants will have an 8-digit Drug Identification Number (DIN). While most disinfectants will work against coronavirus, this is a list of hard-surface disinfectants that are supported by evidence following drug review, demonstrating that they are likely to be effective and may be used against SARS-CoV-2. These products are approved for use by Health Canada and must be used according to the manufacturer's directions.

See Table 1 for more information on appropriate usage of disinfectants.

3.2 Safety Resources Disinfectant Assistance

Safety Resources has acquired a supply of a Health Canada authorized quaternary-ammonium disinfectant for general use. Labs can request a supply of this prepared disinfectant as available at http://ppesales.usask.ca/.

3.3 Safety Use of Disinfectant

Always follow manufacturer's instructions for use. Read labels for direction on dilution and mixing, personal protective equipment (PPE) needed (e.g., gloves, goggles), surfaces appropriate for use, contact time, efficacy on specific organisms, and rinsing requirements. When possible use a prepared solution instead of diluting a concentrate on-site.

Prepared disinfectant solutions will have a shelf life indicated by the manufacturer. Check the expiry date. If a product has expired, do not use it. Some concentrated solutions will have a shorter shelf life after dilution.

3.3.1 Alcohol Disinfectant

For highest effectiveness they should be used at concentrations of approximately 70% (v/v) in water: higher or lower concentrations may not be as germicidal. Exercise caution as even 70% alcohol is flammable and can be ignited. Best practice is to saturate a wipe and apply to the surface rather than directly spraying if ignition sources are nearby. Ethanol often evaporates before the suggested contact time of 5-10 minutes (some studies suggest 70% ethanol to be effective against human coronavirus in 1 minute), so it should be reapplied as it evaporates to

reach the target contact time. Aqueous alcohol solutions are not appropriate for very large area surface decontamination because of the evaporative nature of the solution.

3.3.2 Bleach Disinfectant

Household bleach (5% sodium hypochlorite) may not have a DIN but may be used following instructions below.

3.3.2.1 General Disinfection with Bleach Solution (using 5.25% household bleach)

Bleach solutions must be made fresh every 24 hours.

Do not exceed a 1:50 (1000 ppm) (2% v/v) dilution for general disinfection.

Food contact surfaces are sanitized using a lower strength 1:500 (100 ppm) bleach solution or rinsed after disinfection.

Do not mix soap or other cleaners into the bleach and water solution.

Allow a contact time of 10 minutes

Allow surfaces to air dry after disinfecting.

Bleach solutions must be properly labelled.

3.3.2.1 Recipe for 1:50 Bleach Solution (approximately 1000 ppm)

- 1 teaspoon (5 mL) of household bleach in 1 cup (250 mL) of water.
- 4 teaspoons (20 mL) of household bleach in 1 L of water.

Use a bleach calculator for other concentrations.

Table 1: Usage Information for some Common Disinfectants.

Disinfectant Active Ingredients	Contact Times (Approximately)	Advantages	Disadvantages
1:50 chlorine bleach solution (using 5.25% household bleach); 1,000 ppm	10 minutes	Inexpensive; fast-acting	Corrodes metal; may destroy adhesives with prolonged soaking; solution must be made daily; inactivated by organic material; possible bronchial irritation from inhalation.
70 – 90% ethyl or isopropyl alcohol	5-10 minutes	Fast-acting; leaves no residue	Can damage rubber and plastics; flammable; evaporates quickly.
Quaternary ammonium	10 minutes (follow manufacturer's instructions)	Good cleaning agent for environmental surfaces	Limited use as disinfectant because of narrow microbiocidal spectrum. Leaves a residue which can be a problem for sensitive equipment.
3% hydrogen peroxide	10 minutes (follow manufacturer's instructions)	Inexpensive; fast-acting; environmentally friendly	Oxidizing properties may be destructive to some equipment (brass, zinc, copper and nickel/silver).
0.5% hydrogen peroxide (enhanced action formulation)	Follow manufacturer's instructions	Inexpensive; fast-acting; environmentally friendly; non-toxic; active in the presence of organic materials; available in a wipe; cleans and disinfects	May be destructive to some equipment (copper, brass, carbon-tipped devices and anodized aluminum).
Phenols	Follow manufacturer's instructions	Easy to obtain; cleans and disinfects	Residual phenols on porous materials may cause tissue irritation even when thoroughly rinsed; for environmental surfaces only.

4. Instructions for Disinfecting Surfaces

Normal routine cleaning with soap and water remove microbes and dirt from surfaces. It also lowers the risk of spreading COVID-19 infection.

For most disinfectants, you need to thoroughly wet the surface, then wait the appropriate contact time as specified on the label before wiping. This is even true of bleach. If your bottle doesn't have the instructions on the label, look them up online. Do not assume that the disinfectant works immediately on contact.

Benchtop liners cannot be cleaned or disinfected. Liners must be replaced daily or not used so that the benchtop can be adequately disinfected.

Wipes used for disinfecting surfaces can be discarded in the regular trash.

See Precautions below for guidance on cleaning electronics and sensitive equipment.

4.1 Precautions

Wear PPE including gloves and safety glasses while using disinfectants. After cleaning, remove and dispose of gloves and immediately wash hands.

4.1.1 Protecting Sensitive Equipment

Certain equipment may be damaged by spraying disinfectants directly onto components (computer keyboards and mice, key-style equipment touchpads, on/off switches, power tools, etc.) and by harsher disinfectants such as bleach. If you have approved quaternary-ammonium disinfectant or 70% ethanol wipes, use them for these more delicate tasks. If you do not have disinfectant wipes, these items can be disinfected by soaking a dry wipe or clean soft cloth in the alcohol or disinfectant until it is soaked but not quite dripping, and then using it to wipe the keyboard/switch/etc., being careful to avoid getting liquid into any openings. The surface should be visibly wet after you wipe it, and the disinfectant should be left to evaporate from the surface.

Consider whether frequently used or hard to clean electronics should be protected with a disposable barrier.

Check with the manufacture or product manual for specific instructions on cleaning and disinfecting specialized equipment.

4.1.2 General Guidance for Cleaning Computers

- Use only a soft, lint-free cloth. Avoid abrasive cloths, paper towels, or similar items.
- Avoid excessive wiping, which might cause damage.
- Unplug all external power sources, devices, and cables.

- Don't get moisture into any openings.
- Don't use aerosol sprays, bleaches, or abrasives.
- Don't spray cleaners directly onto the item.

5. Related References

https://updates.usask.ca/working-on-campus/

https://www.saskatchewan.ca/-/media/files/coronavirus/info-for-health-care-providers/infection-prevention-and-control/covid19-cleaning-and-disinfection-fact-sheet-for-public-facilities.pdf

https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html

6. Example WHMIS Labels for Common Disinfectants