COVID-19

Chemistry
UNIVERSITY OF TORONTO
Lash Miller Laboratories St. George Campus

RETURN TO RESEARCH CHECKLIST

Things to consider while planning your return to work

- Do not plan to start work for which you no longer have an adequate stock of PPE (including fit tested N95 respirators (if required for your work), face shields, googles, and gloves)
- There is still a risk of contracting COVID-19; therefore, physical distancing remains in place. See https://research.utoronto.ca/covid-19 for more information
- **There may be delays in the delivery chain or shortage of supplies. Plan accordingly.**

For labs working with SARS-CoV-2: Before resuming lab work, all personnel working with SARS-CoV-2, including its RNA and DNA, must review the SARS –CoV-2 Biosafety Guideline available here and take the online EHS 620 – SARS-CoV-2 Biosafety Training course. You can find the new course on "My EHS Training."

Supervisors

General

Safety training: Ensure safety training of all lab-personnel is up-to-date. Please see the EHS training matrix.

Permits: Ensure your biosafety, radioactive, laser permits, if applicable, are up-to-date and accurate, including amendments and the list of authorized users.

Group-Site-Specific-Preparation BEFORE restart of research

a) Prepare your applications for phase 1 return following CPAD 80. The LM- **Return to Work Plan** and the **Workspace Preparation** SOP offer further guidance
b) Ensure you complete the PPE survey that was sent by Chem-Stores
c) Assign tasks to your approved personnel to prepare the worksite for a safe return. These tasks must take place before research resumes and are delineated in the (checklist below).
d) The checklist (below) was developed to capture all categories that require attention; however, you can combine tasks under fewer teams.

*These teams will be responsible for preparing labs for **gradually** ramping up research and occupancy while maintaining physical distancing*

[1] Do not plan to start work for which you no longer have an adequate stock of PPE and plan for limited availability (including N95's, face shields, and gloves). Review operations to accommodate the lack of N95 (see below change of operations for SILICA use)

ALL LAB MEMBERS MUST FOLLOW the new lab Entry/Exit SOP and the Reusable Cloth Face Masks SOP.

A) TEAM Laboratory Safety & Infrastructure Checkup:

ITEM	Complete	N/A	Notes
• When entering the lab for the first time (from time of closure) pay special attention to smells and sounds. • Do not turn the light if you are suspicious of a potential gas leak. Step out, close the door behind you and call 8-3000			
Fume Hoods • Confirm operating as normal (check face velocity and lift sash above working levels to activate alarm. • Check proper function of fume hood alarm using the test function (if applicable) • Contact grace.flock@utoronto.ca if a FH is found on alarm or with a non-working alarm. • Review last certification date and **report** info to grace.flock@utoronto.ca (a form will be shared for this purpose)			
Eyewash station • Flush eyewash stations for 3-5 minutes to remove sediment and stagnant water and document on weekly inspection sheet. • Check that flow is still at 1.5 l/min and ensure that the flow pattern is adequate to rinse both eyes. • Report problems to grace.flock@utoronto.ca			

Safety Showers • Review tag and report date of last inspection to grace.flock@utoronto.ca			
Fire Extinguishers • Check last date of inspection (report date on form provided). • Check if arrow indicates ready for use. • Report any issues to grace.flock@utoronto.ca			
Glove box (if applicable) • Check for leaks and integrity of gloves			
Biosafety Cabinet (if applicable) • Review certification date to ensure it is less than one year ago. Report date to grace.flock@utoronto.ca • Contact your certification provider if needed. • Confirm it is operating normally and check proper function of BSC as per specifications of manufacturer.			
First Aid Kits • Inspect kits, lab-kits and order/replace expired items			
Chemicals • Assess chemicals that may have become unstable during the closure and manage any expired, outdated, peroxide-forming, self-reactive, or other reagents with a limited lifespan appropriately. • Do NOT touch chemicals on this list of **peroxide formers**. Also look for chemical containers that are bulging or have imploded. • Submit a chemical waste pick up for chemicals in these categories. • Contact the Manager of Chem-Labs Technical Support & Supplies chem.safety@utoronto.ca for disposal.			
• Request waste pickups for peroxide forming compounds or other chemicals (i.e. piranha) that may have become unstable during lab-closure.			

Compressed gas • Review start-up procedures for any compressed gas cylinders, gas generation station, and/or gas distribution systems.			
Gas valves • Check the performance of all gas valves (including those at FHs and benches). • Do this in a safe manner. • Immediately report any malfunction via email to grace.flock@utoronto.ca			
Water • Open all faucets (one sink at a time) and let water run for 10 min. • Remain on site and check for leaks (at the faucet and under the sink). • Check both hot and cold water. • Report any issues to the DOTS (grace.flock@utoronto.ca)			
Plumbing Traps • Pour water in floor drains if you have them to prevent foul odours from entering the lab.			
Check House DI-water • Report any issues to the DOTS (grace.flock@utoronto.ca)			
Check house compressed air • Report any issues to the DOTS (grace.flock@utoronto.ca)			
Check house N2 gas • Report any issues to the DOTS (grace.flock@utoronto.ca)			
• Pay attention and report to the DOTS if you find signs of pest infestation (droppings)			
• Look up at the ceiling and report if there any signs of recent leaks			
For SILICA users • There will be shortages of N95 respirators and reduced ability for fit-testing • To ensure student safety and prevent exposure to silica, modify operations as follows: • **Silica will be handled inside a designated fume hood (ONLY)**			

• To do so, silica pails (25 Kg) can be fractioned into smaller containers (5kg) • FHs in LM3A can be used for this purpose. Smaller containers will be available from Stores and can be re-used (one-time purchase). • For labs tight in storage space, aliquoted stocks can be stored in LM20 (during COVID19) • Alternatively: Consider ordering smaller size silica stocks that can fit inside the FH and can be easily removed once silica has been dispensed. **NOTE**: we will be posting an SOP on the Chemistry's website			
Hazardous Waste Management • Review the **Hazardous Waste Management During COVID-19** SOP to determine your group's time slot for the drop-off of lightly contaminated solid waste to the loading dock and hazardous waste to the LM705 holding room			

B) TEAM Security

ITEM	Complete	N/A	Notes
Door locks • Check the locking mechanism of all doors (laboratory and offices). Report issues to linda.scott@utoronto.ca • and cc. grace.flock@utoronto.ca			
Hazardous material inventory • Conduct a hazardous material inventory to ensure that there was no loss of materials such as chemicals, toxins, controlled substances, etc. Particular attention to inventory of controlled substances, ammonium nitrate and chemicals of interest (appendix A) Report any signs of potential break-in			

• Report missing highly hazardous chemicals or regulated materials such as ammonium nitrate and other chemicals of interest, biological agents to grace.flock@utoronto.ca			

C) TEAM Administrative & Lab/Office-Entry & Exit Procedures

Note: labs with administrative support can have those people in charge of these items

ITEM	Complete	N/A	Notes
Self-screen signs • Post Self-Screen Signs (Public Health) at each door (offices and labs)			
Entry-Exit posters • Post all Entry-Exit posters following the Entry/Exit SOP			
Do a Risk Assessment • Determine the allowed density per room in order to ensure 2 m (6 feet) distancing. Follow the • Document the assessment and use this information to develop personnel-schedules (staggering)			
Stagger Personnel In consultation with the PI and in collaboration with all group members develop personnel's work-schedule of activities that cannot be done remotely (ex: 2 shifts of 6Hr. fixed teams/fixed shifts). • Document and communicate plan to following the Workplace guidelines_CPAD80			
Entry Log Station (optional) • Set-up an entry log station where provision of hand sanitizer, gloves and disinfectant is readily available. • Have the health monitoring questionnaire, entry log and pens available at this station.			
Exit Log Station (optional) • Post required signage and waste containers for disposal of non-reusable PPE at Exit.			

• Have Exit log, pens, disinfectant, hand sanitizer, Ziploc bags (to store used cloth-face masks) and clean gloves available at Exit stations.			
Provision of extra PPE (non-medical - masks) • Review if personnel would require cloth face masks. • Follow the **Reusable Cloth Face Masks** SOP to identify the size needs of your group and place a single order by completing the PPE-survey NOTE: The survey was distributed in May; please use survey to request your group's PPE (email chem.safety@utoronto.ca if you do not have access to the survey) • **Ensure the Reusable Cloth Face Masks SOP is distributed and reviewed among all lab-members**			
Distancing cues • Mark-up distancing cues (on the floor, benches, chairs, desks, to ensure physical distancing).			
Booking of shared or adjacent equipment: • Develop booking-logs and mechanisms to ensure adjacent fume hoods (FHs) are not occupied concurrently (if they are not 2 m apart) and shared equipment rooms maintain low density of people at all times			
Soap dispensers • Ensure they have adequate content and are working properly			
Disinfectant • Prepare disinfectant following the **Surface Disinfection SOP**			
Disinfection • Develop and post signs at common equipment like FHs to ensure disinfection takes place after EACH USE			
Set-up disinfection stations throughout the workspace			

D) TEAM Laboratory Equipment

ITEM	Complete	N/A	Notes
General Equipment • Turn ON appliances, computers, hot plates, ovens, and other equipment sequentially. Confirm that they are operational and turn them back off as appropriated (hot plates for example) • Do not turn ON all equipment at once in order to prevent a massive overload of the electrical system. • Activate updates of computer software as appropriated			
Pumps: • Check that they are functioning properly. • When turning them back ON, remain on site and check for leaks. Immediately report if leaks occur and contain the leak.			
Sensitive/Specialized Equipment: You must be trained & qualified to check these pieces of equipment • Follow your lab's equipment specific instructions when turning ON. Plug via a power surge interrupter whenever possible. • If an issue with an equipment, immediately schedule technical service to secure a date for service (there may be backload and huge number of requests)			
Fridges and Freezers. • Whenever possible, confirm the temperature inside the units. • Review status of content and look for signs of potential loss of power during lab shutdown (thaw-freeze). • If signs are present, identify reagents/samples that may have been spoiled. • Report issues as needed.			
MilliQ water purification system (if applicable)			

• Turn it ON and ensure it produces appropriate water quality • Consider ordering replacement filters and keeping them in stock on-site			
Lasers (if applicable) • Before starting the laser read the manual for "Cold-start" situation • Check the alignment. Use all precaution: reduce power, if possible, use low power visible light to align high power IR systems, use safety googles with appropriate OD, beam stoppers, etc. • Check the wavelength, OD and physical integrity of the goggles before wearing them • Water cooling system to be checked before starting the laser. It is a good moment to have the water changed. • Mirrors and other optical elements may have dust on their surfaces. Dust particles can produce dangerous diffuse reflections in class 4 laser systems and damage the optics. Check all your optics before unblocking the beam. • For high power enclosed lasers used for cutting plastics or other materials, check the exhaust system • Contact the Laser Safety Officer if you have further questions			

E) TEAM Reagents, Consumables & PPE:

**Research Groups will receive a survey template from Stores. Please ensure you return this survey promptly.*

**Stores is currently operating twice weekly on reduced hours and with just the manager on-site. However, we would like to support proactively ordering lab-supplies and temporarily store these supplies in our premises (until research- labs are allowed to open gradually). In order to do so, we require the survey to be completed and all order-requests to be captured in that survey. DO NOT USE uSource until further notice (when Stores is fully staffed). We will do our best to try to secure your requests; but we cannot warranty it.*

IMPORTANT: Some of the items below can be done when completing the survey (if you have remote access to inventories) and some will need to be done once people are allowed back in the labs. Nobody should go to LM to collect this information until research at LM re-opens

Once research resumes, Chem Stores will operate with curb-side pickup ONLY, as per the Stores Operations SOP.

Note: We are actively working to launch an on-line Store for groups to place on-line orders and pick them up once ready. Stores' personnel will be preparing the orders and contacting research groups assigning a time for pickup.

ITEM	Complete	N/A	Notes
• Review your inventory of perishable reagents. Check their expire dates. Compile list of reagents that will need replacement. Order reagents as appropriated.			
• Review inventory of common consumables and re-stock as needed			
Review stocks of required PPE. • Request PPE via this survey			
• Identify supplies that will be critical for your research upon return. Make a list			
• Whenever possible, order those supplies via the Chemistry Stores Supplies Ordering Form. This will facilitate coordinating the process of receiving and distribution.			
• Check your stocks of chemicals (HECHMET provides remote access to your stocks), make a list based on projected needs and pre-order accordingly via Chem Stores (chem.safety@utoronto.ca) • NOTE: Stores will launch an on-line Stores once research resumes. Groups will be able to place on-line orders and pick them up once the orders are ready			
• Contact Chemistry Stores personnel to notify them of any expected incoming shipments (if order independently from Stores).			

• Identify a plan B in the case that your common supplier is no longer available.			
• Supplies may not be readily available, prepare a list of potential acceptable substitutes. Contact Chem Stores Manager (chem.safety@utoronto.ca) for guidance, support and to arrange a timely order-delivery			

F) TEAM Lab-Specific Safety Training

ITEM	Complete	N/A	Notes
• Develop a schedule to provide the on-boarding lab -specific safety training walkthrough while keeping social distancing			
SARS-CoV-2 training • If applicable: discuss with your PI mechanism to ensure that all lab members working in projects associated with SARS-CoV-2 take the SARS-C0V-2 course (EHS 620) • Read the Biosafety Guideline for Research Laboratories document here: https://ehs.utoronto.ca/wp-content/uploads/2020/04/SARS-CoV-2-Biosafety-Guideline-for-UofT-Labs_April-23.pdf • Read the COVID-19 information page here: https://ehs.utoronto.ca/covid-19-information/.			