

1. Protocol for Chemicals in Research 2 Building

This protocol applies to all chemicals to be utilized in the Research 2 building including pyrophoric, water-reactive and flammable substances and materials, and other chemicals.

ALL CHEMICALS THAT ENTER RESEARCH 2, REGARDLESS OF HAZARD CLASS, MUST BE ENTERED INTO CISPRO BEFORE THEY CAN BE DISTRIBUTED TO ANY LAB IN RESEARCH. THE LABELS THAT ARE PRINTED AS PART OF THE CISPRO INVENTORY PROCESS MUST BE PRESENT ON ALL CONTAINERS IN RESEARCH 2. CONTAINERS IN RESEARCH 2 THAT DO NOT EXHIBIT THE REQUISITE BARCODE LABEL, SIGNIFYING THAT THEY WERE ENTERED TO THE CISPRO DATABASE, WILL BE IMMEDIATELY REMOVED.

1.1. Ordering pyrophoric materials

When an order for pyrophoric material is processed, it will be the responsibility of the person ordering to communicate to the vendor that pyrophoric materials should be delivered to Research 2 and can be received neither in Ladd or Dunbar Halls, nor in the Quentin Burdick Building. The purchase order must include instructions for the delivering agent to contact the person who will receive the pyrophoric material when it is delivered. Instructions to the delivering agent must include directions to the northeast corner of the building where the Receiving door and an all-weather phone is located. It would be prudent to also provide a phone number for the delivering agent to call for assistance and to ensure availability of a receiver to accept the shipment.

THE FOLLOWING GUIDANCE APPLIES TO ANY CHEMICAL WHICH ENTERS RESEARCH 2, INCLUDING PYROPHORIC MATERIALS.

1.2. Receiving

Research 2 is a controlled access building. **Chemicals cannot enter the Atrium area** but must be delivered to the receiving door on the northeast corner of the building. When a delivering agent arrives at the Receiving door they will be greeted by the person who was indicated on the purchase order. If that person will not be available, arrangements must be made in advance to identify a secondary receiver. The receiver will inspect the package and sign for it if necessary.

1.3. Inventory

Information for each chemical will be entered into the CISPro electronic chemical inventory. The data entry will be consistent and not deviate from what was presented in training. After the data are entered a barcode label will be printed and applied to each container. These labels are made of a special chemical-resistant polyester with a chemical resistant adhesive and are of a duplex or "piggy-back" design that will enable the surface part of the label to be easily removed later when the container is empty (see section 1.5 below). If the label cannot be easily applied because the container is very small or any other reason, the label will be attached

via a “flag” by wrapping clear tape around the container creating a transparent flag to which the label will be applied. If that approach is not feasible, the container will be placed in a suitable secondary container which will then contain the primary chemical container for the entire time it is inside Research 2.

If there are unforeseen complications that preclude the immediate inclusion of the shipment into the CISPro chemical inventory system, the shipment must be secured in Research 2 Room 145, the Chemical Storeroom. Under no circumstances can a chemical enter any other part of the building until it has been entered into the chemical inventory.

1.4. Storage

The Safety Data Sheet for each chemical will be consulted to determine proper storage and the inventoried chemical will be placed in proper storage. Whenever the chemical is removed from storage for use, it will immediately be returned to the same storage location when finished.

1.5. Consumption or disposal and removal from active inventory

When a material is consumed, the top layer of the yellow duplex label will be removed from the container and placed on a sheet of paper that will be hanging on the inside of each laboratory door. On a weekly basis, those sheets will be collected by the person assigned by the Dept. Chair to serve as the Chemical Inventory Control person and a barcode reader will be used to input each of the barcodes for the consumed chemicals to the inventory in order to remove them from the active inventory. The empty container will be handled according to guidelines for hazardous waste that are part of annual training and are summarized in the NDSU Chemical Hygiene Plan.

If a material is not consumed but must be disposed of, the barcode label will be treated in the same way as an empty container and the container with remaining chemical will be handled according to hazardous waste training.

1.6. Inventory verification

The electronic inventory will be checked against the physical inventory on a regular basis by NDSU Safety Office personnel as spelled out in the Memorandum of Understanding.

1.7. Transferring inventory between locations

When transferring chemicals from another NDSU location to the R2 building, the steps described in section 1.3 must be followed to enter the chemicals into CISPro and a barcode label applied. This can be done in the R2 shipping/receiving area. Alternatively, the chemical can be entered into CISPro and a label printed before the chemical is physically transferred to R2. Then when it is moved to R2, the location can be updated in CISPro. During the initial transfer of chemicals into the R2 building, Safety Office personnel will monitor the entry of

information into CISPro to ensure correctness before the chemicals can be moved into the R2 labs.

When transferring non-pyrophoric chemicals from the R2 building to another NDSU location, the CISPro entry will be updated to reflect that the chemical is no longer in the building. Chemicals must be inventoried according to the inventory protocol in place at their new location.

When transferring chemicals from one location in the R2 building to another R2 location, the CISPro inventory system must be updated to indicate the new location.

2. Protocol for Chemicals In Ladd, Dunbar, and Quentin Burdick Building

This protocol applies to all water reactive and flammable materials, and other non-pyrophoric chemicals in Ladd, Dunbar and Quentin Burdick Building. Pyrophoric materials cannot be delivered to these locations.

2.1. Ordering

When an order is processed, it will be the responsibility of the person ordering (stockroom personnel or PI research group) to process the order according to current protocols.

2.2. Receiving

When the order arrives, the person who received the order will either update the appropriate inventory or alert the Principle Investigator (PI) and remind them to do so immediately.

2.3. Inventory

2.3.1. Quartzy

For labs that utilize the Quartzy cloud-based inventory system, Information for each chemical will be entered into the electronic chemical inventory by the person ordering the chemical (stockroom personnel or PI research group). The data will contain required information necessary for tracking (hazard class, CAS#, building and room location, etc). Quartzy entries will be verified by the Stockroom Manager when the chemical is picked up from the stockroom.

2.3.2. Spreadsheet

For labs that maintain a spreadsheet inventory system, information for each chemical will be entered into the electronic chemical inventory by the person ordering the chemical (PI research group). The data will contain required information necessary for tracking (hazard class, CAS#, building and room location, etc). All chemicals must be inventoried at the time of pickup.

2.3.3. Inventory update verification

Within a day of being notified that a chemical shipment was received, the person who ordered it will verify with the Stockroom Manager that the received material was properly inventoried with its final location.

2.4. Storage

The Safety Data Sheet for each chemical will be consulted to determine proper storage and the inventoried chemical will be placed in proper storage. Whenever the chemical is removed from storage for use, it will immediately be returned to the same storage location when finished.

2.5. Consumption or disposal and removal from active inventory

When a material is consumed, the empty container will be collected in each laboratory in a single location. At the time of disposal of the containers, inventory entries in Quartzly or Spreadsheet will be removed. Containers must be removed from inventory and disposed on at least a weekly basis. The empty container will be handled according to guidelines for hazardous waste that are part of annual training and are summarized in the NDSU Chemical Hygiene Plan.

2.6. Inventory consolidation

Quartzly based inventories will be made accessible to Bret Mayo. Every Friday by close of business, each inventory list that has been updated will be emailed to Bret Mayo (bret.mayo@ndus.edu) to be consolidated in the event they would need to be consulted for an emergency. Bret May will send out email reminders to those labs whose inventories have not been updated for one month. Control zone limits will also be monitored by the Safety Office. If any hazardous material is within 20% of a limit, the Stockroom and the Chemistry Dept. Chair will be notified so subsequent purchases and use can be more carefully monitored. If any limit is exceeded, chemicals will be moved to an on-campus storage facility outside the control zone. The chemicals will be returned once that control zone has the capacity to house it.

2.7. Inventory verification

NDSU Safety Office personnel will periodically perform random spot checks to verify the accuracy of the consolidated inventory.